

Bloomberg Businessweek

PICKING ON THE PROPERTY OF THE

How
Democrats
can fight
gun violence
without
shooting
themselves
in the foot

p1

Cyber Risks

A Future of Costs vs. Potential

Annual spending on cyber disruptions is starting to outweigh the benefits. But that doesn't dim the growth potential of your business



Rising annual cyber costs shouldn't deter investment in innovation and growth, says cyber expert Jason Healey.

A new report from Zurich Insurance Group and the Atlantic Council indicates that we're reaching the tipping point when the annual costs of cyber disruptions begin to outweigh the benefits of doing business in a connected world. Jason Healey, Senior Fellow with the Cyber Statecraft Initiative at the Atlantic Council's Brent Scowcroft Center on International Security, unpacks what that surprising finding means for business.

Why did you undertake the report?

We were driven by the question: How do we know if we're starting to pay more in cyber security costs than we're getting in benefits from being connected? As far as we know, the question has never really been asked before.

And what's the biggest single finding of the report?

The startling finding is that on an annual basis, the developed world is spending more on cyber security in a given year than we are getting in annual benefits. It seems a bit counterintuitive, doesn't it?

Should we just unhook from the Internet?

No, because annual cyber security costs tend to be operating expenses or oneoffs. For example, if you're a big company that just got hit by a hacker attack, you're going to have to spend a bunch of money to recover. But the benefits you get from being connected—streamlined work processes, better connections to your customers, and the like—tend to compound over time in a way that costs don't. So, in the report's base case, cumulative global benefits outweigh the costs by nearly \$160 trillion through 2030.

But CEOs have to manage results quarter-to-quarter, year-to-year. How should individual companies interpret the report?

Let's talk about how they should not view it: They should not view it as a deterrent to investment in growth and innovation. If they do, they will miss out on the potential of cumulative benefits. And that is significant, as the difference between the worst-case scenario and best-case scenario in the report is more than \$100 trillion in global GDP through 2030.

What steps should businesses take to access that potential and minimize costs?

First, a lot of companies just don't have the cyber security they need even for today's threats—much less if it gets worse. The report recommends basic controls that should be adopted. Second, controls aren't going to be enough against future threats. So we really think that investments that make a business more resilient to cyber events could go a long, long way. You're not going to be able to keep all the threats out, so you have to be prepared when you get hit—whether it's by hackers or a wide-scale Internet outage—to be able to bounce back quickly and limit the time of the outages.

Where does responsibility for understanding and managing these risks start?

We believe companies should govern from the board on down. To put it in the kind of finance terms that the board might be more familiar with: In the face of this long bet, basic cyber security and resilience are your hedge. You've got to think of this as a risky position that you're engaged in—a position that could have serious implications for your company. So you really have to invest in covering your long bet.

The benefits you get from being connected tend to compound over time in a way that costs don't. So, in the report's base case, cumulative global benefits outweigh the costs by nearly \$160 trillion through 2030.

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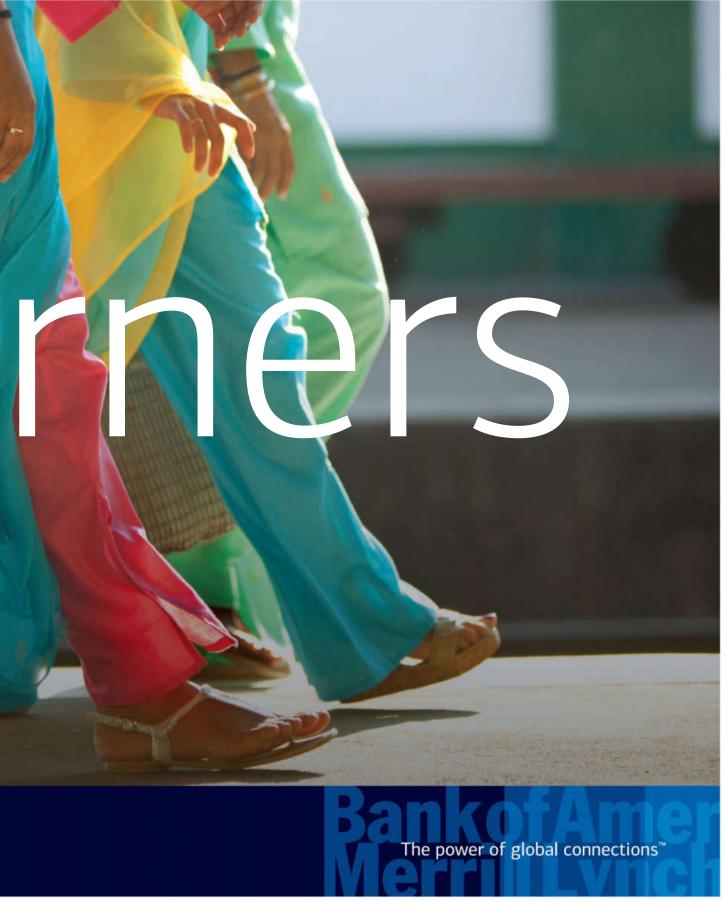
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Head of the Table

Minneapolis–Saint Paul's agriculture industry leads the fight against food insecurity

Of the high-growth industries that are the engine of a reenergized Minneapolis–Saint Paul region—medical devices, clean technology—agriculture may not be the first that leaps to mind. However, with a rising hunger crisis around the globe, the Twin Cities are not only helping to pioneer new technologies that create healthful food for consumers at home and abroad; they're also leading the way in sustainability innovation.

"People don't always think about the Greater MSP area as a hub of innovation in food and agribusiness, but they should," says Chris Policinski, President and CEO of Land O'Lakes Inc., which is head-quartered in the region. "Minnesota is home to many organizations working to alleviate food insecurity, and Land O'Lakes is working

every day to help farmers feed the world in increasingly sustainable, productive ways."

According to the United Nations World Food Programme, roughly one in nine people—approximately 795 million—don't have enough to eat to lead a healthy lifestyle, and the majority of them live in developing nations. In addition to producing the staples commonly found on supermarket shelves, Land O'Lakes also includes Winfield Solutions, which provides science-backed crop and seed growing products and services, including genetically modified seeds to help feed a rapidly growing global population.

"Our farmers and cooperatives adopted biotechnology very quickly, because the benefits of safe, proven technologies in agriculture are well-established," Policinski explains. "As it does in so many industries, technology works for good in agriculture. Just as putting a mobile phone in the hands of a farmer in Africa can be life-changing, providing a seed that grows well in drought-stricken areas, or is enhanced with vitamin A to provide additional nutrients for children, can provide opportunity in so many ways."

Helping farmers
produce more food
using fewer resources
in an environmentally
friendly manner
lies at the heart of

our founding.

— Chris Policinski



Closer to home, the region's agriculture companies are proactive in supporting U.S. farmers, while adhering to the high standards set by consumers who increasingly demand "farm to fork" freshness and eco-friendly growing. "Helping farmers produce more food using fewer resources in an environmentally friendly manner lies at the heart of our founding," says Policinski, who cites the company's on-farm sustainability program that helps farmers monitor greenhouse gas emissions and water and energy usage.

"As consumers now have a keen interest in where their food comes from, decisions by retailers and distributors have the potential to reinvent supply chain systems throughout the world,

affecting farmers, co-ops, manufacturers and more," Policinski adds. "We occupy a unique space as experts across the agribusiness value chain, and we must be at the table helping drive change that is good for consumers, our farmers and our planet."

This change is also good for Minneapolis—Saint Paul, as the region capitalizes on its agricultural heritage while touting its advancements in science and technology. "Safe and abundant food, clean water and health solutions are critical issues facing the world over the next century," says Michael Langley, CEO of GREATER MSP, the Minneapolis Saint Paul Regional Economic Development Partnership. "These issues have global impact and need to be solved."

To Langley, the Greater MSP region is uniquely positioned to lead the way to find solutions. "Our region has the human capital, the intellectual expertise and the business ecosystem to provide these solutions in the global economy," he continues. "These are areas where Greater MSP has global leadership, and because of that it will lead in creating solutions for these challenges." — Jill Sieracki

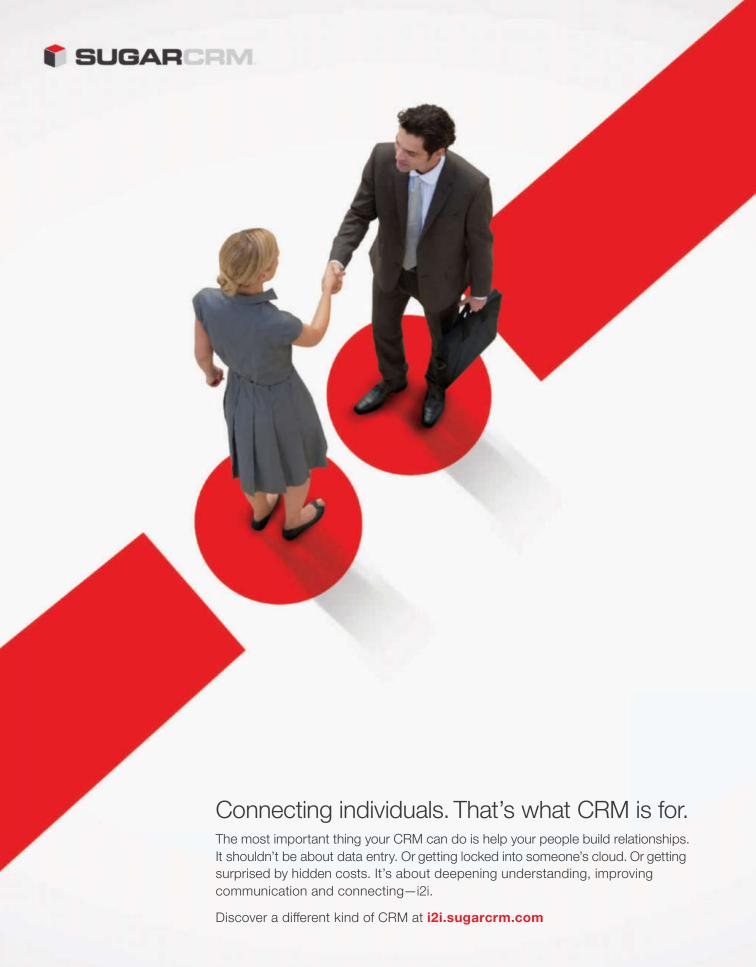


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Contents



"To me it's not a racial issue—I speak Spanish as good as I speak English" "We were able to say that no snails are harmed and that the harvesting process for the snail enzyme is ethical"

"I'm the only one that's peed in his blue onyx toilet"

Bloomberg Businessweek

October 19 - October 25, 2015

Opening Remarks Hillary Clinton's misguided NRA slugfest	14
Bloomberg View Putin's swagger abroad masks peril at home • A Nobel for Angus Deaton	18
Global Economics	
How low do interest rates have to go before the wealthy start spending?	20
As unemployment climbs in São Paulo, loan delinquencies spook banks	21
China's state-owned enterprises are losing money—but not government favor	22
Petro states start raiding their sovereign wealth funds	23
For conservators rushing to spend a €105 million EU grant, it's the last days of Pompeii	24
Companies/Industries	
You, too, can try a Korean beauty miracle—snail slime	27
A Brazilian airfreight startup wants to leap over the Amazon's potholes	28
Obamacare has been a boon to breast-pump maker Medela; it may become a burden	29
Even after giving workers a big raise, Fiat Chrysler has a sweet deal	30
Briefs: Twitter cuts its character count; Wal-Mart's grim outlook	31
Politics/Policy	
Who speaks for the House Republicans?	32
A Rebel-flag-flying Houston suburb panics over the Latino colonia rising in its midst	33
Massachusetts makes a profit on its biotech investment	34
A Bill: Santa suits want to be taxed like Halloween costumes	35
Technology	
The jet engine breakthrough that took 30 years	36
Its streaming rivals are racing after gamers, but Roku's decided not to play	37
Google helps the Freshwater Trust survey America's polluted waterways	38
A booking app brings better rooms—and a hotel-building boom—to India	39
Innovation: Breathe easier, world. The smog-eating tower is coming	40
Markets/Finance	
A riddle wrapped in a price swing: "Weird stuff happens" in Treasuries	42
Lenders unload their shale-patch liabilities as energy stock	43
Dell uses a tracking stock in its valuation for EMC, giving tech-bubble vets some painful flashbacks	44
U.S. pot growers may finally find bankers: casino-managing tribes	45
Bid/Ask: It's Miller time for the King of Beers; for British postal workers, the check is in the Royal Mail	46
Features	
Declined How American Express lost Costco	52
Monkey Business A visit to the controversial primate plantations of Florida	58
Trump's Apprentice The reality-TV finalist driving the candidate's success in Iowa	64
Etc.	
The family that built and lost Lululemon fights back with Kit & Ace	71
Drinks: This autumn, learn to love the bitter Italian amaro	74
The Critic: Will Beasts of No Nation win Netflix an Oscar?	76
Exercise: A NASA-powered treadmill goes easy on the knees	77
Entertainment: Why Top 40 radio will never die	78
What I Wear to Work: Alton Brown dons very expensive blazers	79
How Did I Get Here? Judy Vredenburgh, CEO of Girls Inc., advises marrying someone with a flexible job	80



How the cover gets made

Domestic cover



"The cover is on gun regulation. The headline is 'Stop Picking on the NRA.'"

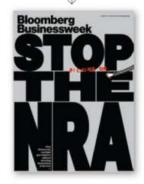
"WHAT?!?!? They're a massive, powerful, and wealthy organization that aggressively lobbies for the increased sales of handheld murder machines. Do we really need to be defending them? I'll do my job, I'll design this grotesque cover, but I don't have to like it. Not one bit!!!"

"Have you read the story?"

"No."

"The idea is that, when Democrats bash it, the NRA uses that to become more powerful."

"Ooooooh, I see what you're doing."



International cover

"The story's on how American Express is struggling to maintain its brand cachet, largely because of the loss of an important corporate partner."

"What corporate partner?"

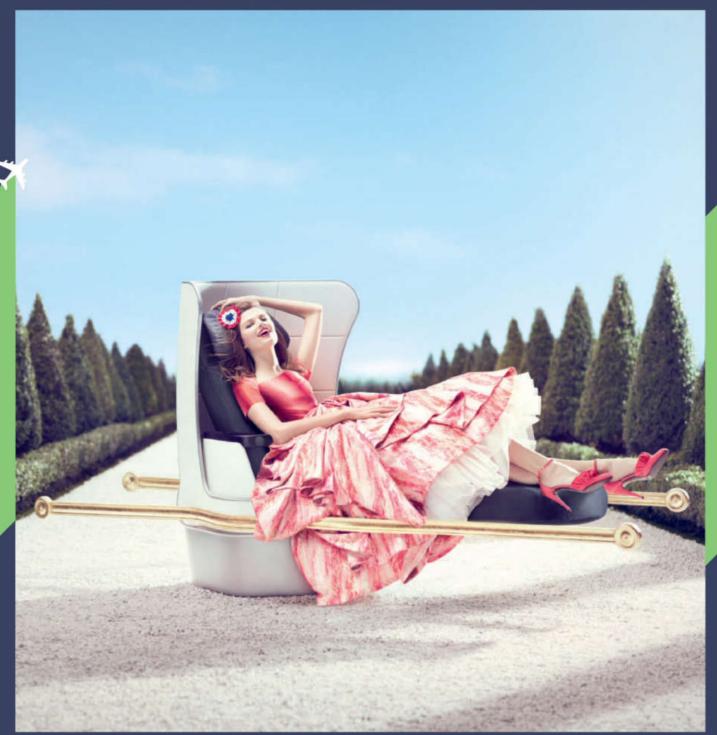
"Costco."

"That centurion always looked like he thought he was better than the rest of us."



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People/Companies



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Abu Dhabi Commercial Bank

Adams, Will Agarwal, Ritesh Air New Zealand (AIZ:AU) 36 Airbus (AIR:FP) AirInsight 36 44 Alcatel (ALU) Alexander Wang AlterG Amanpour, Christiane Amazon.com (AMZN) American Airlines (AAL) 54, 60 American Express (AXP) Amorepacific (090430:KS) 27 Anderson, Chris Anheuser-Busch InBev (BUD)

AOL (VZ) 31, 37, 78 Apple (AAPL) AstraZeneca (AZN) Atlas Air Worldwide (AAWW)

Atmosphere Research Group

Attah, Abraham Azul Linhas Aéreas Brasileiras



BC

Associates

Ballmer, Steve 54 Bank of America (BAC) 43, 54 Barclays (BCS) Berkshire Hathaway (BRK/B)

BetterBuyDesign Bioculture Group

Blumenthal, Richard 60 **14** Boehner, John 36 36 Boeing (BA) Bombardier (BBD/B:CN) Brainard, Lael Brown, Alton **Buffett**, Warren 54 Bush, George W. California Environmental

Callens	72
Capital One (COF)	54
Cascades Biosciences	
Consultants	60
CBIE	28
Charles River	
Laboratories (CRL)	60
Chenault, Kenneth	52
Citigroup (C)	43, 54
Clinton, Bill	14,80
Clinton, Hillary	14
Clinton, Hillary CNN (TWX)	14 66
CNN (TWX)	66
CNN (TWX) Coca-Cola (KO)	66 54
CNN (TWX) Coca-Cola (KO) Cole, Amanda	66 54 29
CNN (TWX) Coca-Cola (KO) Cole, Amanda Cole, David	66 54 29 37
CNN (TWX) Coca-Cola (KO) Cole, Amanda Cole, David Colony Ridge Land	66 54 29 37 33
CNN (TWX) Coca-Cola (KO) Cole, Amanda Cole, David Colony Ridge Land Condé Nast	66 54 29 37 33
CNN (TWX) Coca-Cola (KO) Cole, Amanda Cole, David Colony Ridge Land Condé Nast Cornyn, John	66 54 29 37 33 31 14

Deaton, Angus Dell, Michael Delta Air Lines (DAL)

Deutsche Wohnen (DWNI:GR) DFC Intelligence 37 Diageo (DEO) Dimon, Jamie 42 Discover Financial Services (DFS) DXA Investments 28

Elba, Idris	76
Embraer (EMBR3:BZ)	36
EMC (EMC)	44
Expedia (EXPE)	44
Export-Import Bank of Ko	rea
	0

Facebook (FB)	33, 54, 66
FedEx (FDX)	28
Fey, Tina	54
Fiat Chrysler (FCAU) 30
Fidelity Investments	54
Finish Line Physical	Therapy77
Fischer, Stanley	20
Flom, Jason	78
Flores, Bill	32
Flymojo	36
Fonda, Jane	72
Ford Motor (F)	21, 30
Frishman, Bruce	29

38

Fukunaga, Cary

G	
Gap (GPS)	73
Garaufis, Nicholas	54
Gavekal Dragonomics	22
General Electric (GE)	36, 46
General Motors (GM)	30, 44
Ginger	39

	N
Girls Inc.	80
Glencore (GLEN:LN)	23
Glock	14
Goertz, Tana	64
Gohmert, Louie	32
Goodall, Jane	60
Google (GOOG)	37, 38, 78
Gore, Al	14
Greenwich Associate	es 42

Н
Harley-Davidson (HOG)
Harris, Todd
Harris, Trey
Hayes, Gregory
HBO (TWX)
Heineken (HEIA:NA)
Hermansen, Tor
Hi-Rez Studios
Hook & Albert
House, David
HVS

28

33 36

37

46 **78**

37

79 **54** D

39

36

IGun Technology
Irkut (IRKT-RM)

J	
Japan Airlines (9201:JP)	36
Jarden (JAH)	46
Jelinek, Craig	54
JetBlue (JBLU) 36	, 54
Johnson & Johnson (JNJ)	34
Johnson, Dave	60
Jollibee Foods (JFC:PM)	46
Jostens	46
JPMorgan Chase (JPM) 42,	43,
45	,54

K	
Kickstarter	40
King, Jonathan	76
Kit & Ace	72
Kline, John	32
Klobuchar, Amy	14
Kopke, Darrell	72

LabCentral	34
Labrador, Raúl	32
Larsson, Michael	29
Larsson, Olle	29
Latham, Paul	54
Lava Records	78
Lazard (LAZ)	42
Le Coq Sportif	72
Lee, Gerald	28
Lew, Jack	32, 42
Lewis, Robin	72
LG Electronics (0665	70.KS128

LG Household & Health

Care (051900:KS) 27 Liberty Media (LMCA) Lufthansa (DLAKY) Lululemon Athletica (LULU) 72

VI	
/lalone, John	44
Marchionne, Sergio	30
MasterCard (MA)	54
/laven's House	39
AcCarthy, Kevin	32
AcClintock, Tom	32
AcConnell, Mitch	32
AcCune, Michael	36
AcDonald's (MCD)	54
/ledela	29
Medical Marijuana	45
/lichael Kors	72
/licrosoft (MSFT)	37, 54
/liller, Candice	32
finistry of Supply	72
/litsubishi (7011:JP)	36
/lizhuo Securities	44
Modern Logistics	28
Mossberg	14
/lovnihan. Brian	43

N	
Nader, Ralph	
Vanagalutiana	

Nader, Ralph	14
Nanosolutions	40
Netflix (NFLX)	76
New Hampshire Pharmacy	&
Medical Equipment	29
Noujaim, Jehane	76
Nvidia (NVDA)	37

0
Obama, Barack
Oscar Gruss & Son
Ouya
Owen, John
Oyo Rooms

14

43

37

28

39

60

18

Ρ	
Parker, Peter	34
Participant Media	76
Patrick, Deval	34
PayPal (PYPL)	39
Peach & Lily	27
Pelosi, Nancy	32
Perry, Katy	78
Petrobras (PBR)	21
Philips Avent (PHG)	29
Phocuswright	39
Phoenix Marketing	
International	54
Pitt, Brad	76

Procter & Gamble (PG) Putin, Vladimir PwC Q

PreLabs Primate Products

QVC (QVCA)



R	
Razer	37
RBC Capital Markets (RY)	54
Renzi, Matteo	24
Rhapsody	78
Ribble, Reid	32

Rihanna Riparian Pharmaceuticals Rogers, Hal	7 3
Roku	3
Roosegaarde, Daan	4
Roosevelt Investment Grou	ıр

Rousseff, Dilma	
Rowell, Thomas	
Royal Mail (RMG:LN)	
Rubie's Costume Co.	
Russell, Bill	
Ryan, Paul	

Ryan, Paul	32
ST	
SABMiller (SAB:LN)	46
Samsung (005930:KS)	28
Sandberg, Sheryl	54
Sanders, Bernie	14
Sandler, Adam	76
Schmidt, Eric	78
Schultz, Howard	80
Sephora	27
Sequoia Capital	39
Siegal, Peggy	76
Silva, Lula da	21
SiriusXM (SIRI)	78
Smashburger	46
Société Générale (GLE:FP)	
SoftBank (9984:JP)	39
Sony (SNE)	37
SoulCycle	72
SoundCloud	78
Spears, Britney	78
Spin-Off Advisors	44
Spotify	78
Standard & Poor's (MHFI) 32	
Starwood Hotels (HOT)	54
State Street (STT)	42
Sting	76
Strategy PR/Consulting	76
Studio Roosegaarde	40

Overiska Geliulosa (GOAA.C	00)
	46
Swann, Lynn	80
Swartz, Cynthia	76
Sweaty Betty	72
Swift, Taylor	78
Tabb Group	42
Tabb, Larry	42
Target (TGT)	27
TD Securities (TD)	42
Thiel, Peter	39
Tiger Global Management	39

Stutzman, Marlin

SuperData Research

Time Warner Cable (TWC)	44
Timken (TKR)	36
TonyMoly	27
Tory Burch	72
Treasury Wine	
Estates (TWE:AU)	46
Trump, Donald	66
Tucci, Joseph	44
23andMe	31
Twitter (TWTR)	31

U

32

Ubben, Jeffery	5
United (UAL)	6
United Technologies (UTX)	3
Urban Outfitters (URBN)	2
Ursem, Bob	40
US Airways	5

V

•	
ValueAct Capital	5
Van Dreunen, Joost	3
Visa (V)	5
VMware (VMW)	4
Volkswagen (VOW:GR)	21, 23
	3
Vonovia (VNA:GR)	4
Vredenburgh, Judy	80

****\/

VV	
Wal-Mart Stores (WMT) 31	, 54
Walt Disney (DIS)	44
Warren, Elizabeth	42
Wausau Paper (WPP)	46
Weiss, Antonio	42
Wells Fargo (WFC)	46
West, Kanye	54
Whiting Petroleum (WLL)	43
Whitworth, Joe	38
Wilson, Chip	72
Wilson, JJ	72
Wilson, Shannon	72
Winfrey, Oprah	80
Wood, Anthony	37
Wunderlich Securities	43

XY7

32

37

712	
Xi Jinping	2
Yellen, Janet	2
Yoon, Alicia	2
Young Thug	5
Yummy Mummy	2
Zostel	3

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Corrections & Clarifications

"All Breitbart's Children" (Features, Oct. 12-Oct. 18, 2015) stated that James O'Keefe supplied the videotape of Shirley Sherrod to Breitbart News. He did not.

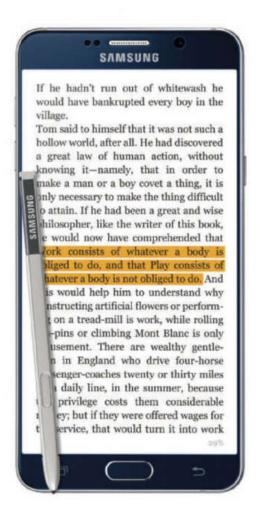
10

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Opening Remarks

Please Hate Me. Love, The NRA

By Paul M. Barrett

Rekindling the culture war with the gun lobby is a losing proposition. Here's what can be done to curb violence For the first time in 16 years, guns will play a prominent role in the presidential election. In 2000 energized gun-rights activists helped cost Al Gore his home state of Tennessee and Bill Clinton's home state of Arkansas. As much as Florida's hanging chads and Ralph Nader's third-party self-indulgence, pro-gun agitation put George W. Bush in a position to enjoy the Supreme Court's delivery of the White House in *Bush v. Gore*.

After the Oct. 1 killings at Umpqua Community College in Roseburg, Ore., a visibly angry but oddly passive Barack Obama pointed out that the U.S. experiences a mass shooting every couple of months and "if you think this is a problem, then you should expect your elected officials to reflect your views." In her response to the massacre, Hillary Clinton detailed how, if elected president in November 2016, she'd pursue a more aggressive gun-control agenda than Obama. "It's time the entire country stood up against the NRA," she said during the Democratic debate on Oct. 13.

Clinton sees the gun issue as a way to motivate her progressive base while simultaneously outflanking her main primary challenger, Senator Bernie Sanders of rural firearm-friendly Vermont. Asked during the debate whether Sanders is "tough enough on guns," Clinton answered, "No, not at all," noting he'd voted repeatedly in the early 1990s against the criminal-backgroundcheck law. The liberal wing of the Democratic Party likes what it's hearing from Clinton. "For a major presidential candidate to break the logiam in the way she's doing is a momentous shift," says Senator Richard Blumenthal (D-Conn.).

But Clinton may be making a mistake framing her argument in culture-war terms—as a battle against the National Rifle Association, which is a conspiracy-minded extremist group that thrives when under attack. Moreover, while some of her ideas make sense, others, including her emphasis on "assault weapons," come straight from a tired, ineffective guncontrol playbook.

What's needed is a sorting out: fact from myth, reason from rhetoric. We also need to analyze rigorously the separate challenges posed by sensational mass shootings and ordinary violent crime.

Let's begin with the folly of making the NRA the issue. "They're celebrating at NRA headquarters in Fairfax [Va.] that Hillary is coming after them," says long-time gun-rights activist Richard Feldman. "You can't ask for better ammunition for the NRA." While the NRA has refrained from commenting directly on the nine horrific gunshot murders in Roseburg, it's issued online alarms to the faithful in recent days condemning Clinton for "ratcheting up her attack on the nation's gun lobbyists." In particular, the NRA has highlighted the former secretary of state's predebate comparison of its stubbornness to that of "the Iranians or the Communists."

"Hillary Clinton is giving the NRA all the 'proof' it needs to persuade its members of the Big Conspiracy-that the Democrats are coming for their guns, even though in eight years in office, Obama didn't really do that," says Feldman, who knows whereof he speaks. He's a former NRA organizer who's lobbied for Glock and other gun manufacturers and now runs the Independent Firearm Owners Association, a small group based in New Hampshire. In another recent digital dispatch-cum-fundraising appeal, the NRA warned: "Gun Grabbers High on Hillary, Look to Her to Enact Controls Where Obama Failed."

Rather than further excite alreadymotivated gun activists in swing states such as Ohio, Pennsylvania, and West Virginia, sincere opponents of gun violence ought to shift the debate away from whether it's weird to idolize firearms and toward what works to reduce crime. For better or worse, from 30 percent to 40 percent of American households have a gun, and many have more than one. We are a nation with 300 million firearms in private hands; for practical and constitutional reasons, there's no prospect of mass confiscation. The guns aren't going away, at least not anytime soon.

In his Roseburg response, Obama made an unpromising rhetorical move, contrasting American attitudes toward firearms with those of our Englishspeaking allies. Australia and Great Britain, he asserted, "have been able to craft laws that almost eliminate mass shootings." The Australian government responded to the 1996 massacre of 35 people in Port Arthur by outright banning certain weapons and instituting a gun-buyback program that led to the destruction of more than 600,000 firearms. After 16 Scottish children and their teacher were murdered the same year, the British Parliament banned private handgun ownership.

Good for the Brits and Aussies. Their dramatic responses probably did cut down on firearm mayhem. But that's irrelevant to the U.S. As long as the Supreme Court interprets the Second

Amendment as protecting an individual's right to own a gun, we're not banning pistols or confiscating semiautomatic rifles. Even apart from constitutional niceties, imagine being the sheriff assigned to scoop up all the handguns and AR-15 military-style rifles in some rural county in Texas. Short of a second civil war, it just ain't happening.

So what makes sense? Plugging holes in existing laws and enforcing those laws more vigorously. On this score, Clinton and other Democrats have some solid suggestions.

Federal law already bars convicted felons, individuals adjudicated mentally

ill, domestic abusers subject to restraining orders, and other categories of presumed dangerous people from obtaining firearms. But in a strange quirk, the same law obliges only licensed gun dealers to initiate FBI background checks to determine whether a would-be buyer falls into one of the prohibited categories. In most states, you don't need a license to set up a card table at the county fairground or the local armory-or anywhere-and sell weapons. This anomaly has been confusingly branded the "gun show loophole," as if the problem were weekend gatherings where people buy, sell, and gossip about guns. There's nothing inherently wrong with gun shows. Indeed, as anyone who's attended a typical gun show knows, most sellers at these events are licensed dealers who do perform background checks. The problem is that for no good reason "private" sellers—whether operating at a gun show, at their kitchen table, or increasingly via the Internet—don't have to follow the rules.

This has serious consequences. In a fresh and still unpublished survey of more than 2,000 gun owners, Deborah Azrael at the Harvard School of Public Health found that 40 percent of respondents said they'd most recently acquired a firearm without a background check. That's a gaping loophole.

Clinton has proposed requiring that

anyone who regularly sells guns, whatever the venue, be deemed "in the business" of retailing firearms and therefore required to do background checks. This is an important clarification that she maintains could be accomplished by using the president's executive authority—an implied dare to Obama to preempt her by moving on it now.

"Among the strategies to keep guns out of the hands of the wrong people, universal background checks are the low-hanging fruit," says Mark Kleiman, professor of public policy at New York University's Marron Institute of Urban Management. (Everytown for Gun Safety, an advocacy group supported by Bloomberg LP founder Michael Bloomberg, endorses universal background checks.)

While we're rationalizing the background-check system, there are two other straightforward reforms Congress ought to approve: Senator Blumenthal is sponsoring a bill that would eliminate an exemption allowing gun sales to go through automatically if, because of bureaucratic delay, a background check isn't completed within 72 hours. The don't-wait rule allowed the Charleston, S.C., killer to buy a Glock .45, which he used to kill nine people at an African American church in June.

A second bill, sponsored by Senator Amy Klobuchar (D-Minn.), would expand the domestic-abuse restraining-order rule to cover not only current and former spouses, but also abusive boyfriends and convicted stalkers. Clinton and some Democrats also favor



■ repealing a 2005 law that shielded the gun industry from tobacco-style liability lawsuits filed by shooting victims or their relatives.

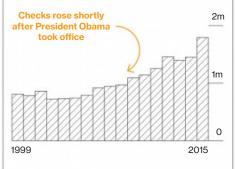
"Repeal could have a negative impact on all firearms manufacturers, the established ones and startups," says Jonathan Mossberg, a scion of the Mossberg shotgun manufacturing family and chief executive of IGun Technology, a developer of digitally equipped firearms. He fears a flurry of frivolous lawsuits that will do nothing to increase safety. "This nonsense," he adds, "will not end until people actually take responsibility for their own actions and cease placing the blame on inanimate objects." Clinton also has tactical campaign reasons to stress the repeal: Senator Sanders supported the 2005 Protection of Lawful Commerce in Arms Act in deference to gun activists in his home state of Vermont.

Clinton and other Democrats. however, have muddled their reaction to Roseburg by combining calls for universal background checks and reinstatement of gun-industry liability with demands for revival of the Bill Clinton-era "assault weapons" ban. From 1994 to 2004, when the ban expired, Americans were forbidden to buy an arbitrarily selected list of semiautomatic rifles (although with cosmetic changes, almost identical weapons remained available) and ammunition magazines that could hold more than 10 rounds. The ban had no discernible effect on crime levels, according to studies conducted in 1997 and 2004. If anything the porous prohibition made so-called assault weapons more notorious and therefore more popular among gun owners who went out and bought an extra one. And there were more to buy of certain brands, because in the runup to the ban, manufacturers such as Glock filled warehouses with grandfathered-in, large-capacity gear. All that happened was the price of the guns and magazines rose along with demand, putting more money in the pockets of the gun industry.

Focusing on assault weapons remains futile today. In 2014, according to the FBI, less than 3 percent of the roughly 12,000 murders in the U.S. were carried out with rifles of any sort, ranging from woodenstock .22 squirrel plunkers to AR-15s, the civilian equivalents to the weapons used by U.S. troops in Afghanistan. Americans killed each other far more often with knives (13 percent) and hands and feet (6 percent) than they did with semiautomatic rifles. Handguns—concealable and plenty lethal—are the source of the overwhelming amount of gun crime, and

Getting Ready to Buy

Firearm background checks initiated in September



DATA: NATIONAL INSTANT CRIMINAL BACKGROUND CHECK SYSTEM

that's where the focus ought to be. We need to deny all prohibited individuals access to all guns, not just to particular types of weapons.

Which brings us to the distinction between the thousands of mundane gun crimes committed primarily with handguns and the sensationalized mass shootings that inspire our spasmodic debate about gun control. The litany of multivictim bloodshed is disgusting: Before Roseburg, we had Sandy Hook, Aurora, Tucson, Virginia Tech, Columbine, and on and on back through the years. Mass shootings in public places get most of the attention, but individual murders on dark street corners and in living rooms are far more the norm. On a typical day, 30 Americans fall victim to gun homicides, mostly slain by inflamed family members, rival gangsters, or armed robbers. Suicide takes an even greater toll, as an additional 58 people a day kill themselves with guns.

While background checks may deter an interstate gun trafficker or a gangbanger who bothers to buy at retail, the FBI record system is unlikely to flag the next campus shooter. That's because most mass killers lack serious criminal records or formal determinations that they're mentally disturbed. As was the case in Roseburg, these deranged individuals, typically self-hating young men, plan their suicidal attacks carefully and obtain their arsenals legally.

That's not to say that they don't give warning. Most mass killers drop hints of what they're plotting. The Roseburg maniac wrote in a recent blog post, "Seems like the more people you kill, the more you're in the limelight." The

In most states, you don't need a license to sell weapons at the county fair—or anywhere opportunity to observe such behavior puts the onus on parents, classmates, and teachers to keep an eye peeled for threatening utterances and behavior. The media bear responsibility, too. With the connivance of 24/7 cable news stations and websites, we have provided dangerous young men with a template for how to orchestrate attention-drenched suicidemassacres. As Second Amendment liberties come with costs, so First Amendment protections mean that lawmakers cannot stifle media coverage of mass killers. But media outlets can self-regulate, beginning with refraining from naming shooters and generally trying to lessen the dark celebrity they now routinely accrue.

Meanwhile, the terrorism-inspired ethos of "see something, say something" has to expand from airports and subways to school campuses and playgrounds. To facilitate action by concerned onlookers, Senator John Cornyn (R-Texas) has proposed a bill that would make it easier for relatives to force the mentally ill to follow psychotropic medication prescriptions. That's an idea that Democrats would be wise to embrace.

Some municipalities have already taken smart steps to coordinate preventive measures aimed at the potentially dangerous mentally ill. In Los Angeles County, for example, police, mental health professionals, and school officials cooperate to train teachers to recognize troubling behavior and, when necessary, intervene before something terrible occurs. According to anecdotal media reports, the program has shown some success. A statewide initiative due to go into effect in California next year will allow relatives or the police to seek a judicial restraining order against someone who appears to be mentally deteriorating and has access to firearms. Other counties and states should follow suit.

Legitimate civil liberties concerns, as well as hesitation to stigmatize the mentally ill, will no doubt impose limits on how far society can go when seeking to label people as dangerous merely because they're unwell. But that should not inhibit us from making cautious distinctions and, in extreme cases, trying to protect the unwell from harming themselves and others.

With the same sort of deliberate approach, we ought to distinguish between the various sorts of threats guns pose and make sure the solutions we consider are likely to ease problems, rather than make them worse. One thing's certain: Mudslinging with the NRA is not the answer. **9**



Bloomberg View

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How Vladimir Putin May Come Undone

Russia is heading into a deeper recession than the one the U.S. experienced in 2009



Russian President Vladimir Putin's renascent Cold War with the West is partly meant to obscure his country's economic slump. It's a reckless strategy—not least because it's making the slump worse. The consequences for Putin and for global security could be dire.

Sending troops into Ukraine in the spring of 2014 marked a major change in Putin's political calculus. Instead of promising Russians prosperity in return for accepting his unchallenged authority, he'd appeal to nationalist fervor. The shift drew attention away from his economic mismanagement, rampant cronyism, and failure to reduce Russia's dependence on exports of oil and gas. Supported by with-us-or-against-us propaganda, it also provided cover for harsher persecution of his critics.

Now the repercussions are becoming apparent. Without the support of high oil prices and hampered by Western sanctions, Russia is headed into a recession deeper than the U.S. experienced in 2009. Although the official unemployment rate remains low, other indicators suggest that hidden joblessness—including people going to work and not getting paid—is on the rise. Wage arrears were up 29 percent in September from a year earlier, according to the Federal State Statistics Service.

Next year's budget will be a problem. Starved of revenue, the government has to make tough choices as it seeks to balance the interests of pensioners, state workers, and the military.

If the downturn proves temporary, Putin is well-positioned to ride it out. His approval rating exceeds 80 percent. Increasingly, though, the evidence suggests he's done longer-term damage. His grip on the economy may be strangling the dynamism and entrepreneurship that Russia needs to recover.

Consider the response of food and automobile producers to last year's devaluation of the ruble and ban on Western imports. Those businesses should have boomed, stealing market share from foreign competitors—as they did after the ruble crash of 1998. This time is different. Output of food, beverages, and

tobacco was up only 0.4 percent in August from a year earlier, according to data compiled by Bloomberg. Auto production was down 28 percent.

Investment is down, too. In the second quarter it fell 8.4 percent from a year earlier, the sharpest drop since 2009. That makes it hard to see where a strong recovery might come from. Economists expect growth to remain anemic through 2017.

Russian resilience is hard to exaggerate, especially when patriotism is invoked. At some point, though, a failing economy will implicate the leadership. That's dangerous, because the means for an orderly change aren't in place. What comes after Putin isn't clear—and it might not be better, for Russia or for the West. If the Kremlin doesn't change course, Russia and its neighbors had better brace themselves.

A Well-Deserved Nobel Prize

Recognition for an economist who came up with ways to measure poverty and consumption

Angus Deaton, this year's winner of the Nobel Memorial Prize in Economic Sciences, is a rarity: a careful social scientist and an honest policy wonk. In recent years, economics has had no better champion. For many years a professor at Princeton, he played a crucial role in developing methods for correctly measuring poverty and consumption—a more difficult problem than it appears, and fundamental to many branches of the science. Later he connected these findings to the mysteries of growth and development.

Yet Deaton has been more than a pioneer of mathematical and statistical sophistication in economic research. He's set the best possible example of how to apply those skills to policy. His work expresses real moral urgency—he sees global inequality as a call to action—yet he's scrupulous in recognizing the limits of what is feasible. A hallmark of the entire Deaton canon: no wishful thinking.

He is adamant that helping the poor is a moral imperative, for example, yet has voiced skepticism about the effectiveness of foreign aid. Many individual aid projects are worthwhile, he says, but even the best risk compromising institutions and undermining democracy. As he put it in *The Great Escape*, a fine popular account of the long arc of economic advance, which he published in 2013: "If poverty and underdevelopment are primarily consequences of poor institutions then, by weakening those institutions or stunting their development, large aid flows do exactly the opposite of what they are intended to do."

Morgan Stanley

Capital Creates Hope

A healthier population enriches all our lives. Juno Therapeutics is working to revolutionize how we treat cancer. They turned to Morgan Stanley to help raise the necessary capital. With funding secured through one of the largest biotech IPOs in history, Juno is developing innovative treatments that use the body's own immune system to detect and kill cancer cells. Initial clinical trials have shown encouraging results. Together, we're doing the work to make breakthroughs possible. Capital creates change.



Global Economics

October 19 - October 25, 2015

Decisions, Decisions

- Looking to the past may not help Yellen on rates
- "We no longer believe that QE can fix everything"

Members of the Federal Reserve Board of Governors don't usually share their differences in public. On Oct. 11 the board's vice chairman, Stanley Fischer, said in Lima that he expects a hike in the Fed's main rate "later this year," confirming what Chair Janet Yellen had said in September. Within two days, Lael Brainard and Daniel Tarullo, both on the board, said the Fed should wait because there wasn't yet any sign of inflation. That disagreement shows the dilemma Yellen faces: Raise rates soon and risk smothering a tepid recovery, or wait until next year and risk igniting inflation.

Congress gave the Fed two jobs: Keep inflation predictable and unemployment low. In the past, as unemployment went down, inflation went up. Fed hawks argue that, with unemployment at 5.2 percent, inflation is on its way. Doves say that relationship isn't what it used to be. There's a third argument: We don't really know how well the last seven years of Fed policy have worked. And if the central bank can't be sure of what happened in the past, it will find it hard to decide on the future.

The Fed can't tell banks how to lend. Instead, it relies on something measurable that it can control: the rate of interest. Since 2008, the Fed has kept short-term rates near zero and brought long-term rates down through "quantitative easing." That required the central bank to buy a lot of long-term U.S. government debt. By lowering long-term rates, QE would encourage people to buy houses, and businesses to borrow for expansion.

While QE succeeded in bringing

down long-term rates, lending didn't increase as much as anticipated. The Fed hit its interest rate target square on. It's hard to measure how much easing has benefited Main Street. Some economists are skeptical. "We no longer believe that QE can fix everything," says Michala Marcussen, global head of economics at Société Générale.

"We have very good estimates of how quantitative easing affected interest rates," says Amir Sufi, a professor at the University of Chicago Booth School of Business. "We don't know how to translate that into how it affected the real economy." Sufi's lecture in June at the Bank for International Settlements in Basel, Switzerland, asked whether monetary policy was as effective as economists had believed. Central banks, he concluded, failed to take into account that people behave differently under the same policy. Economists call those diffe ences in behavior "heterogeneity."

Suficited two recent papers that show that when rates fell in the U.S., households with higher debt burdens—generally the poor—were more likely to spend. His own research



The oil-rich countries dip into their rainy-day funds 23

China's pampered state companies feel the love 22

Pompeii's \$100 million use-it-or-lose-it challenge 24



speech, Sufi urged central banks to change their models to account for heterogeneity. The Fed has already started. A 2015 paper by its research division looks at how the unconventional monetary policy of the past seven years has affected U.S. unemployment. The paper assumes that households differ in the way they respond to lower rates and in their view of the future, with most households planning no more than five years ahead. For those with such a short-term perspective, the Fed's success in bringing down rates on loans that mature in 10 years is irrelevant. The paper concluded, however, that loose monetary policy at its peak in early 2015 subtracted an extra 1.25 percentage points from the unemployment rate.

In 2012, Ben Bernanke, Yellen's predecessor, told economists at the annual gathering of central bankers in Jackson Hole, Wyo., that the Fed's actions had lowered long-term interest rates and improved financial conditions. "Obtaining precise estimates of the effects of these operations on the broader economy is difficult," he said. As Yellen considers her next move, that's true for her, too. —Brendan Greeley

The bottom line Researchers on Fed policy are discovering that rate cuts affect rich and poor consumers differently.

Recessions

Brazil's Bright Job Market Goes Dark

- ► The auto plants of São Paulo are cutting workers fast
- "Now I have a mortgage and a car loan"—and no job

In the smog-filled, run-down industrial hubs that ring the southern end of São Paulo, Brazil's next big crisis is taking root. The labor market, the lone economic bright spot as growth stagnated, is suddenly deteriorating

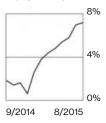
Global Economics

rapidly. Unemployment recently reached 7.6 percent, up from 4.3 percent at the end of 2014.

Nowhere is the pain of layoffs felt more acutely than in this gritty zone of steel, auto, and auto parts factories built decades ago by Ford Motor, Volkswagen, and others. São Paulo is losing almost 20,000 jobs each month, the state's industrial federation estimates.

Rising unemployment will leave

Unemployment Rate in Brazil



millions of Brazilians scrambling to repay debts as their wages disappear. Rossini Santos, a 43-year-old steelworker, had loaded up on debt to finance his new middle-class lifestyle. First it was

an \$80,000 mortgage in 2009 to buy a small one-story home near the auto parts factory where he worked. Then, in early 2014, it was a \$17,000 loan to purchase a new Chevrolet Prizm.

Just months later his employer, a maker of castings for auto parts, filed for bankruptcy. The company kept operating, but it limped along. In August, Santos was fired, along with dozens of other workers. He collects 1,380 reais (\$360) in unemployment insurance a month, one-third of his old salary. "Now I have a mortgage and a car loan," he says. "And with no wage, I have to tighten my belt."

One year after a massive corruption scandal emerged at Petrobras, the state-run oil company, and four months after Brazil officially entered recession, the Quoted financial indicators are even bleaker. The real has fallen more than any other major currency; annual inflation has reached almost 10 percent; the budget deficit has ballooned to the biggest in at least two decades; and the government's credit rating was cut to junk by Standard & Poor's. Itaú Unibanco, one of Brazil's biggest banks, recently predicted the economy will shrink 3 percent this year. It sees unemployment topping 10 percent by 2016.

In conversations with São Paulo bankers, unemployment comes up time and again as they lay out the

reasons the recession and financial crisis could intensify. They're worried that the increase in the jobless rate has just begun and could drive up loan defaults by households. Eroding consumer demand would leave once-packed shopping malls empty, which in turn could threaten the financial stability of retailers and mall operators.

Over the past decade, Brazil underwent a spectacular credit boom that helped pull some 40 million people into the middle class. Total loans in the banking sector climbed almost fivefold during the period, to 3.1 trillion reais. Family household indebtedness-as a percent of annual income-has jumped to 46 percent from 20 percent a decade ago. Loan delinquencies reached a two-year high of 3.1 percent in August.

"Everyone believes this crisis isn't over," says Marcílio Moreira, an ex-finance minister who was part of the team in the early 1990s that struggled to tame hyperinflation. Prepare for things to get worse, he says, "in terms of production, inflation, and unemployment."

In Santos's hometown of Santo André, signs of the downturn are everywhere. The region is the heart of Brazil's auto industry and a stronghold of the trade union movement. It was here that a young labor leader named Lula da Silva-President Dilma Rousseff's predecessor and mentor-rose to national prominence. A picture of Lula posing with local leaders hangs from the wall of the union office that Santos, a union representative, visits often.

The photo was taken in 2010, the final year of Lula's two-term presidency. The economy grew 7.6 percent then. Car sales rose 30 percent. This year they're down 23 percent. And in August, the jobless rate in the São Paulo metropolitan area reached 8.1 percent, above the national average.

All this makes Santos uneasy. The unemployment checks he's been collecting run out around the end of the year. His loan payments keep coming due, every month, until -Blake Schmidt, with Cristiane 2039. -Lucchesi

The bottom line The jump in Brazil's unemployment rate will likely prolong and deepen the country's recession.

Reform

China's State Sector: **Bigger Than Ever**

- ► The giant corporations are deemed essential to the party
- ► "There's now a strong feeling that state enterprises are an asset"

On Sept. 29, China's national bureau of statistics said profits of governmentowned industrial companies dropped 24.7 percent in the first eight months of the year. The state-owned enterprises performed worse than companies that had foreign investors, which eked out profit growth of 0.7 percent. Private companies did best, recording a 7.3 percent rise.

The poor showing of the SOEs comes as President Xi Jinping is launching his long-awaited state-sector reform. Don't

"Perhaps there will have to be great suffering and destruction before people come together."

Angus Deaton, winner of the 2015 Nobel prize for economics, writing about climate change in his essay in 2014's In 100 Years: Leading Economists Predict the Future



expect mass shuttering or privatization of China's more than 100,000 government companies, many of them money losers. Instead, policymakers aim to make "stronger and better" state champions, according to a five-year plan released on Sept. 13 by the State Council and the Communist Party's Central Committee.

"Throughout the Chinese government, there's now a strong feeling that state enterprises are an asset," says Barry Naughton, a professor at the University of California at San Diego and author of *The Chinese Economy*. SOEs should "improve and develop the socialist system with Chinese characteristics," says the official 20-page list of reform guidelines. Andrew Batson, Beijing-based China research director at consultants Gavekal Dragonomics, says the report is big on lofty statements but short on concrete details.

Encouraged by the leadership's call for sweeping economic reforms at a party plenum two years ago, many China economists had been expecting a plan that would curb the power of the state sector, says Sandra Heep, head of economic policy and financial system at the Mercator Institute for China Studies in Berlin. Instead, "the leadership wants to build the state sector into an even stronger one, but they also want it to be more efficient, and they want to remain in the driving seat," she says. "They are trying to square the circle."

The biggest SOEs are expected to go through "massive M&A," the official Xinhua News Agency reported the day the reform plan was released. China has already combined the two largest bullet-train makers; it will also probably merge two of its shipping companies.

As part of the plan, state-owned companies will be divided into public and commercial categories, with opportunities for various degrees of outside investment. The first group will include transportation and services such as city water and sewage systems. They'll remain fully funded and run by the government. Commercial enterprises will be split into those operating in strategic industries (such as defense and nuclear power, which will continue to enjoy preferential support) and nonstrategic state companies (in retail, tourism, and logistics, which will be more open to investors). The least competitive of the nonstrategic

companies could be allowed to go bankrupt, according to the guidelines.

State-dominated industries such as banking, telecommunications, oil and gas, and shipping will have permission to accept private and foreign capital, or what officials call "mixed ownership." That's supposed to encourage the longcoddled companies to pay more attention to customers. Changing ingrained practices at SOEs won't be easy, with Beijing likely to limit outside investors to minority shares, says Kellee Tsai, a professor of social science at the Hong Kong University of Science & Technology. The phrase mixed ownership "is a classically ambiguous one," she says. "I don't really see it as providing the basis for real reform."

The revolving door that shuffles top party officials into jobs running large state companies, and vice versa, is an obstacle to real change, says Sheng Hong, director of the Unirule Institute of Economics in Beijing, which favors market reform. "There will not be any solution from the party aimed at fixing state enterprises which in any way affects the SOE management groups' interests," he says. "So the SOE plan inevitably must just be beautiful words, but with no real reform in it."

—Dexter Roberts

The bottom line Economists had hoped President Xi would weaken the power of state-owned enterprises. Instead, the opposite may happen.

Investment

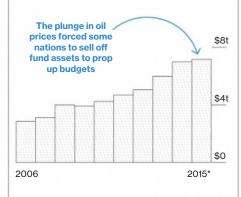
Petro States Shake Their Piggy Banks

- Oil nations are tapping sovereign wealth funds to plug budget holes
- "It will have an impact on financial markets"

From Oslo to Doha, Riyadh to Moscow, governments that experienced unprecedented prosperity by riding crude's historic rise are tapping their sovereign wealth funds to make ends meet. Such funds are often set up by governments to channel their oil and gas wealth into stocks, bonds, real estate, and other assets. The idea is to earn enough so that even if a country runs out of oil, it

Sovereign Wealth Funds Slow Down

Assets under management



*PROJECTION; DATA: SOVEREIGN WEALTH FUND INSTITUTE, THECITYUK ESTIMATES

can pay for the government services its population relies on.

During the last boom, the oil countries bought stakes in iconic companies such as Barclays as well as trophy assets such as Manhattan hotels, European soccer clubs, and London luxury homes. The funds' investments total \$7.3 trillion globally, according to the Sovereign Wealth Fund Institute. Oil is trading at \$54 a barrel, half what it sold for before the summer of 2014. On Oct. 7, Norway said it expects to tap its \$820 billion fund next year for the first time in its 19-year existence to balance the government's budget. Norway's decision follows similar moves across the Persian Gulf and in Russia. "If the wealth funds of Norway and the Gulf countries begin to slowly pull out, it will have an impact on financial markets," said Michael Maduell, president of the Sovereign Wealth Fund Institute, in an e-mail.

TheCityUK, a lobbying group for the financial-services industry in London, expects sovereign-fund assets will increase by 4 percent in 2015, to \$7.4 trillion, well below the 12 percent average annual growth over the previous five years.

The amount of petrodollar investment in the five years through 2014 was on a similar scale to the amount of the Federal Reserve's quantitative easing program spent on U.S. government bonds, according to analysts at Barclays. As the wealth funds switch to selling, the world has lost about \$400 billion in annual demand for financial assets, they say.

Nowhere is the reliance on rainyday funds more evident than in

Global Economics

■ Saudi Arabia. From a peak of \$737 billion in the summer of 2014, the kingdom's foreign holdings fell for the seventh month in a row in August, to \$654.5 billion, according to data from the Saudi Arabian Monetary Agency. The oil slump has spurred the biggest Arab economy to search for government savings, contemplate project delays, and sell its first bonds since 2007.

The United Arab Emirates, Kuwait, and Qatar, Gulf monarchies that have spent lavishly on public works to maintain the support of their populations, have announced plans to raise extra cash. Abu Dhabi, home to the \$773 billion Abu Dhabi Investment **Authority**, is scrutinizing its largest state companies to see what it can sell, four people with knowledge of the matter say. The government and the companies it owns have been running down the country's hard currency reserves and withdrawing cash from their banks to fund spending. The government did not return calls for comment.

Qatar Investment Authority (QIA), which owns shares in Glencore and Volkswagen, just sold a stake in French construction company Vinci valued at about \$400 million. The Vinci deal comes just two months after QIA sold two London office buildings for more than £550 million (\$851 million).

Norway plans to spend 208 billion kroner (\$25.7 billion) from its sovereign wealth fund, topping the 204 billion kroner it anticipates earning next year from sales of oil and gas, according to the 2016 budget.

Russia, squeezed by lower commodity prices and sanctions imposed by the U.S. and the European Union over the conflict in Ukraine, expects to spend as much as 4.7 trillion rubles (\$75 billion) of the **Reserve Fund**, one of its two oil funds, this year and next to weather its first recession in six years. The funds, which are invested mainly in U.S. and European government bonds, held the equivalent of \$144 billion on Oct. 1, according to the Finance Ministry.

The sovereign wealth funds are trying to earn higher returns on their investments. Norway's fund opened an office in Tokyo dedicated solely to real estate on Oct. 8. The government in Oslo may increase the share of the fund's money that can go into stocks from 60 percent to as much as 70 percent.

Qatar's fund is interested in buying a minority stake in Glencore's agriculture business, according to three people familiar with the matter. Qatar and Glencore declined to comment. The Qatar Investment Authority says it plans to invest \$35 billion in the U.S.

"The view now is that oil prices are going to remain low for longer, so oil-producing states are having to look at both how to maximize revenue and how to reduce spending," says Monica Malik, chief economist at Abu Dhabi Commercial Banks. "This trend will continue into 2016." —Stefania Bianchi and Matthew Martin

The bottom line The assets of sovereign wealth funds will grow 4 percent this year, down from the annual average of 12 percent from 2009 to 2014.

Development

Cash, Not Ash, Is Pompeii's New Problem

- Workers race to spend EU funds before a December deadline
- "The goal is to secure the most vulnerable buildings"

In the ancient Roman city of Pompeii, men in hard hats bustle along the Via dell'Abbondanza, setting up fences marked "Work in Progress." At a restored basilica that opened this summer, patches of new plaster stand out on once-crumbling steps. Inside the amphitheater where gladiators fought, a temporary structure houses the remains of victims of the eruption of Mt. Vesuvius in 79 A.D.

Although Pompeii is frozen in time, the workers are in a hurry—to spend money. In the next 11 weeks they have to burn through almost \$100 million—about five times what they've spent in the past three years—or risk losing it. "This got off to a slow start," says Antonio Irlando, president of a non-profit devoted to safeguarding Italy's heritage, stopping to pick at weeds growing through cracks in the walls of the ruins on a tour of the site. "Now



it's as if there's an emergency."

The struggle to preserve Pompeii offers lessons for Prime Minister Matteo Renzi as he prepares what the government calls a "new Marshall Plan" of more than €70 billion (\$80 billion) for the depressed south. The problem is public money is rarely spent efficiently in Italy. The European Commission says it allocated €28 billion in economic development funding to the country from 2007 to 2013, behind only Poland and Spain. But the commission paid out just 76 percent of Italy's funds-the fourth-worst among the 28 EU states-as projects were never drawn up or weren't completed by the mandated deadline.

Take Pompeii. In 2012 the commission and the Italian government earmarked €105 million for restoration at the site after a series of headline-grabbing problems such as the collapse of the Domus Gladiatoria, a gymnasium for gladiators. As of now, only €17 million of the EC's grant has been paid out. The state agency in charge of the work estimates that it will be lucky to get to €50 million by yearend.

The highest-profile achievement so far has been the restoration of plaster



casts of victims buried under ash and pumice by the eruption and the start of a study to examine the remains for clues on their lives. An exhibition of 20 of the casts includes a woman lying on her back with her arms raised, with a child apparently sitting upright on her stomach. "We're trying to make up for lost time," says Giovanni Nistri, who heads the state-run Great Pompeii Project. "The goal is to secure the most vulnerable buildings and draw up a road map for future work."

A former chief of the art-theft unit of the paramilitary police, Nistri says that when he arrived in January 2014almost two years after the money had been pledged-work had begun on the ruins of only five houses and just €700,000 had been spent. He's enforcing what he calls "almost experimental" rules both to accelerate and control the spending: Bidders for projects are screened for links to the Mafia and other criminal groups. Winners must open a bank account dedicated to the contract and make all payments to suppliers by bank transferno cash allowed-and video cameras monitor project sites to ensure people from tainted companies don't work as

subcontractors.

While Pompeii is something of a special case because of its status as a United Nationsdesignated World Heritage Site,

the regulations could serve as a model for projects across southern Italy, says Marcello Messori, director of the School of European Political Economy at Luiss University in Rome. "Pompeii has succeeded in implementing very radical solutions partly because of the attention and pressure it's under," he says. "It's gone in the right direction and can be replicated, though that won't be easy because other parts of the south aren't under the same pressure." The success of the new regulations can be seen in the bids coming from companies outside the Naples region for contracts at Pompeii-a sign they expect they'll get a fair chance at winning in a region where Mafia-linked businesses often prevail in public tenders.

Pompeii may win at least a partial postponement of the deadline. A European Commission spokesman

says spending on some Pompeii projects would likely continue past December. Nistri says he expects to be granted an extra 12 or 18 months. He has 31 projects in mind, including mapping the condition and stability of structures across the city, shoring up the most fragile walls, and draining rainwater from a hilly area covering ruins that have never been dug up by archaeologists. "We're talking about 44 hectares of ruins," Nistri says. "What's important is to know just where the problems are, and then we can intervene." — John Follain

The bottom line Rules used to combat corruption in Pompeii could become a model for a €70 billion development plan across southern Italy.



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Companies/ Industries

When it absolutely has to be there—in two weeks 28

Milking profit from Obamacare 29 A raise for UAW workers is good news for Fiat Chrysler 30

Briefs: Twitter trims workers; Wal-Mart cuts its forecast 31

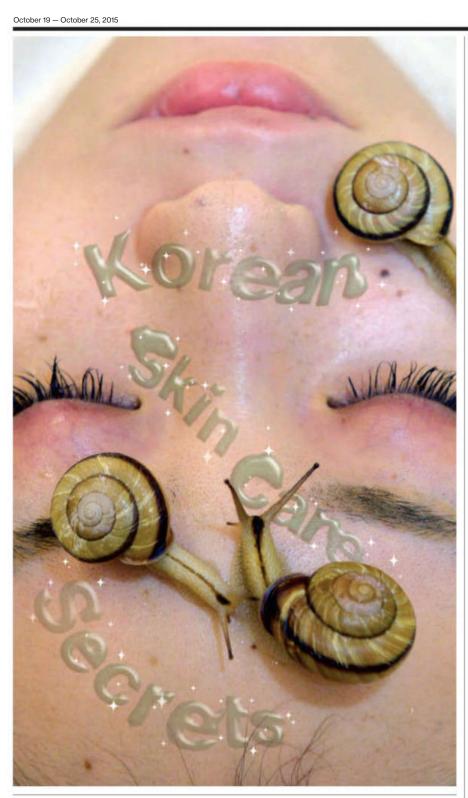
The New York flagship store of South Korean cosmetics empire **TonyMoly** touts several products made from snail slime. There's snail-based eye cream, toner, and moisturizer, even a "premium snail" face mask. "Snail mucin is very well-known for helping with skin recovery and regeneration," says Michelle Kim, head of U.S. market distribution for TonyMoly. "**Sephora** saw our snail gel mask and asked if we'd develop something for them."

TonyMoly, Amorepacific, and LG Household & Health Care are among the Korean companies behind a slew of beauty products gaining popularity in the U.S. and globally. Promises of glowing skin combined with appealing packaging have persuaded chains such as Urban Outfitters and Target to feature the skin-care lines on their shelves. Sephora, the Paris-based cosmetics retailer, launched a "K-beauty" campaign this fall in all 380 of its North American stores, hanging signs in the windows advertising Korea's "coveted dewy look."

Overseas sales of Korean cosmetics rose 66 percent this year through August, reaching \$1.5 billion, according to the Korea International Trade Association. The Export-Import Bank of Korea projects that number to jump to \$10 billion in the next 5 to 10 years. Much of the demand comes from China, and several brands are creating products specifically for that market. "No one really uses horse fat in Korea, but people love it in China," says Alicia Yoon, chief executive officer of Peach & Lily, a New York-based e-retailer that sells Korean beauty products. China accounted for 12 percent of Amorepacific's sales in 2014.

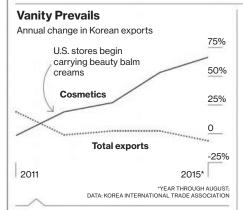
In Korea, women's skin-care rituals can take up to an hour a day and consist of 4 to 20 steps, with a different product for each. Beyond snail mucus, several products feature unusual ingredients, including camel milk, bee venom, and starfish extract. "Korea has a culture of taking care of your skin, and it's been that way for thousands of years," says Yoon.

American fashion magazines and beauty bloggers are largely responsible for the growing demand in the



- Finding beauty in snail mucus, camel milk, and starfish extract
- "When they listen to music, they produce more slime"

Companies/Industries



◀ U.S., where sales of Korean cosmetics reached \$154.1 million last year, a near-fivefold increase since 2005, according to data from the U.S. Commercial Service. The obsession with Korean products picked up around 2012, after Sephora introduced beauty balms from Korea's Dr. Jart+. Beauty bloggers intrigued by the so-called BB creams started demanding more products from Korea. "None of this would have happened without digital influencers," says Yoon.

Seoul-based TonyMoly began as a packaging company in 1994. It became a beauty products line in 2006 and now has more than 600 stores in Korea. "It's basically like Starbucks," says Kim. "On every corner there's TonyMoly."

In 2013, Urban Outfitters introduced TonyMoly's whim-

duced TonyMoly's whim sical products in the U.S.-lip balms in

Why Smear This On Your Face?

Donkey milk Soothing and rich in vitamin C

Starfish extract Moisturizes and regenerates

Bee venom Triggers collagen production

Pig collagen Boosts elasticity

Fermented soybeans Moisturizes U.S.—lip balms in the shape of red lips (\$10) and face mists in bunny doll bottles (\$15). TonyMoly opened its New York flagship store in June. Fifty percent of U.S. customers are non-Asian, says Kim.

"I found out about TonyMoly

because I watch a lot of Korean dramas online," says Jocelyn Boyd, a 30-year-old English teacher. "The stars, both men and women, are so beautiful, and sometimes they tell you online what they're wearing. I do a mask every couple of days."

Kim visited a snail farm in Korea and recalls that it was "very natural, lots of plants." She adds: "There are millions of snails. I've heard that they feed the snails green tea and that, when they listen to music, they produce more slime."

Yoon founded Peach & Lily in 2012, selling Korean lines, including upscale brands Cremorlab and Shangpree. She has exclusive distribution rights to about a dozen brands and hundreds of products. The company now sells on **QVC**. "We were able to say that no snails are harmed and that the harvesting process for the snail enzyme is ethical," she says.

Ingredients such as snail slime aren't simply a gimmick, says New York dermatologist Whitney Bowe. "You'd actually be surprised how many products contain snail mucus," she says. The mucus is known to firm and hydrate skin and reduce fine lines, among other benefits, she says. Donkey milk is another popular ingredient in Korean skin-care products. (In ancient Egypt, Cleopatra supposedly bathed in it.)

To pack in skin nutrition, many Koreans turn to precut cotton, gel, or rubber sheet masks with holes for the eyes, nose, and mouth. They range in price from \$4 to \$20. "You can wear them while doing chores or watching TV," says Kim. "You become a kind of Hannibal Lecter for 30 minutes, but who cares? The next morning you're going to be very pretty."

—Caroline Winter

The bottom line Overseas sales of Korean cosmetics are projected to reach \$10 billion in the next decade.

Transport

In Brazil, Getting It There Is No Fun at All

- A domestic airfreight service hopes to start flying in November
- "We have a serious logistics problem" in the country

Shipping large quantities of goods from Brazil's manufacturing centers to transportation hubs is absurdly difficult. Gerald Lee, a founder of Brazil's third-largest airline, Azul Linhas Aéreas Brasileiras, plans

to help change that. He's started airfreight company **Modern Logistics**, which he says will cut transport time. "Companies are so needy for solutions here," Lee says, noting that Brazil's transportation industry has seen little change or investment in 30 years. With few rail options, most goods travel by truck on bad roads.

Case in point: Manaus, a city deep in the rain forest. The tax-free trade zone is home to hundreds of factories that make pharmaceuticals, cosmetics, and smartphones, among other products. **LG Electronics** has a plant there, as do **Samsung**, **Harley-Davidson**, and other multinationals. There isn't a single usable highway into or out of the city,

however. Televisions are loaded on barges and sent down the Amazon River to the port town of Belém, then driven by truck along pothole-filled paved roads to São Paulo state—a 10-day journey.

Lee, a former New York City police detective, says he and his cargo-only carrier can cut that trip to several

hours. This will help businesses reduce inventory time and increase product shelf life. Lee has his eye on Manaus's smartphone makers, some of which already ship by air on commercial flights, a costly workaround.

"The useful life of products is going to get even shorter" as technology advances, Lee says, so they must get to the consumer faster. "We're 20 steps behind that now, and we need to be prepared."

"We have a serious logistics problem in Brazil," says Adriano Pires, president of transportation and energy consultant CBIE in Rio de Janeiro. "It's very precarious, and it's one of the things that most drives prices up." Companies in Brazil spend more on logistics than companies in the U.S., according to the World Economic Forum's Global Competitiveness Report. That weighs on earnings. "Logistics impacts every sector in the economy," Pires says.

FedEx and **Atlas Air Worldwide** have flown into and out of the country



Amazon **Primed** It's not infrastructure but bureaucracy that's delayed Lee's plan. He was supposed to start flying in March, Belém and there's no guarantee that date won't be pushed back further. "To transport anything, there's a moun-Manaus tain of paperwork," Pires, the transportation consultant, says about the difficulties the startup faces. "There's paper Lee has one Boeing BRAZIL 737, which he expects here, paper there, to start flying in permission from November agency A, regulator B. 3.5 hours by plane It's extremely complex." Christiana Sciaudone 10 days by river and road The bottom line Gerald Lee's Brazilian airfreight service has attracted more than \$19 million in funding. Rio de Janeiro São Paulo Mother's Milk Obamacare helps, and hinders, a "Every new mother or potential 500 miles

500 km

since at least 2007, but neither flies freight between Brazilian cities. Brazilian law limits where foreign carriers can go.

In September 2014, DXA Investments, a private equity fund in Rio de Janeiro, put 75 million reais (\$19.7 million at today's exchange rate; \$33 million at the time) into Modern Logistics. Friends and family members also have invested in Lee's venture, including JetBlue co-founder John Owen, who sits on the company's board of directors.

Modern Logistics has one used Boeing 737. Lee expects to get the permits required in time to start flying in November. The company has 56 employees and three warehouses, and contracts to transport goods for three companies, which Lee declines to identify. It will also offer warehousing, packing, and ground distribution. He plans to have four more planes making deliveries by yearend and is in talks with two more clients, he says.

Making Millions From

- Swiss breast-pump manufacturer
- mother knows about Medela"

Obamacare has been a blessing for Swedish-born engineer Olle Larsson. In 1961 he founded Medela, which makes the butter-yellow breast pumps found in lactation rooms at companies and institutions from JPMorgan Chase to Harvard University. Mandatory coverage of breast pumps has helped boost the Swiss company's sales by 34 percent in the two years the Affordable Care Act has been in effect. "The insurance part has changed our business. More moms have access to pumps," says Susan Rappin, Medela's vice president for marketing. Adds Bruce Frishman, president of New Hampshire Pharmacy & Medical Equipment: "Brand awareness is off the charts. Every new mother or potential mother knows about Medela."

But the ACA has also upended Larsson's business in his biggest market by changing the way products are sold. Most pumps covered by insurance can't be bought over-the-counter. Obamacare requires women to get the devices from

certified medical-equipment suppliers. That's taken a toll on small retailers, who've largely been cut out of the business and are a prime outlet for Medela's more expensive consumer models.

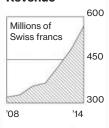
Companies/Industries

ACA also sets an upper limit for the price of most pumps. Rappin wouldn't discuss price details, but one person familiar with the business, who asked not to be identified discussing private information, says the profit margin on pumps covered by insurance–now the bulk of Medela's U.S. sales-is about one-third lower than on those sold at retail. The ACA could also threaten Medela's dominance as the lower prices set by insurers spur suppliers to shift to cheaper brands. The most expensive pumps sold by its closest competitors, Ameda and Philips **Avent**, top out at about \$200, just over half the price of Medela's most popular retail model.

The lack of paid maternity leave in the U.S. means more working mothers must express milk, making the country Medela's biggest market and the source of more than half its sales. Before the ACA, mothers typically had to pay for pumps, which fueled a secondary market for them on websites such as Craigslist. (Medela discourages reselling.) "Moms get obsessive about feeding," says Amanda Cole, owner of Yummy Mummy, a breastfeeding specialty store in New York. "You don't want to go with a brand vou don't know."

Breast pumps and accessories such as bottles made up 90 percent of closely held Medela's revenue of 577 million Swiss francs (\$630 million) in 2014. In 2013, Larsson transferred some of his stake in the company to a foundation dedicated to supporting breast-feeding, though the company declined to discuss details of its ownership structure or valuation. In 2001, Larsson handed day-to-day control of

Medela Annual Revenue



Medela to his son Michael.

Larsson became interested in lactation in the 1960s after meeting fellow Swedish engineer Einar Egnell-founder of rival Amedaand soon started tinkering with

Companies/Industries

■ the idea himself. In 1980, Medela sold its first breast pump, the Classic, which Larsson designed and built. Weighing 22 pounds, it was used mainly by hospitals to help new mothers establish milk supply or feed premature babies.

Today, Medela says 80 percent of American and British hospitals use its pumps. In addition to its institutional-grade versions, which cost \$1,185 each, Medela makes a halfdozen consumer models, ranging from the \$42 Harmony manual to the \$400 Freestyle, an electric version that can fit in the palm of your hand. Medela says the model most commonly covered by insurance is a scaled-down version of its \$360 Pump in Style Advanced. After the ACA went into effect in 2013, Medela increased production of less expensive models that had been developed for women receiving U.S. government aid.

Some lactation consultants say Medela's insurance-covered pumps don't yield as much milk as its more expensive retail versions. After her son was born, Philadelphia attorney Leah Katz attended a lactation group meeting for help expressing milk. "When I complained that I wasn't getting much, the first question everyone asked was whether I was using the insurance pump, because it wasn't as effective," she says. Katz wound up paying \$360 out of pocket for a



Medela to use at home and an additional \$80 a month to rent a hospital-grade version for the office, to get through five pumping sessions each day and another in the middle of the night. Marketing chief Rappin says the motors in pumps Medela makes for insurers are identical to those in its retail models, though some other components may be different. "We see the ACA as an opportunity to reach more women," she says. "Our focus has really been on making sure that moms receive a product that's right for their needs." — Devon Pendleton

The bottom line Medela dominates the breastpump niche and has benefited as the ACA requires insurers to cover the cost of the devices.

Cars

A Wage Hike for Workers, a Win for Fiat

- ► The carmaker still has a laborcost advantage over its rivals
- "I thought the UAW would say, 'Get to \$30'"

Since 2007, workers at **Fiat Chrysler**'s U.S. plants have fallen into one of two wage categories: veteran employees who earn about \$28 an hour, or Tier 1; and newer hires who make about half that, or Tier 2. The system, agreed to by the United Auto Workers (UAW) to help the Big Three automakers stem losses during the recession, turned a job that helped create the American middle class into one that for some barely paid the bills.

Detroit's autoworkers want that tiered pay scale abolished, and, starting with Fiat Chrysler, they're closer to that goal. The automaker and the union reached a tentative agreement on Oct. 7 setting higher wages for all workers, averting a strike that would have crippled production. It would create a path for entry-level workers to eventually reach the highest pay grade, more than \$29 an hour, with increases beyond that based on seniority.

Under the proposal, scheduled for a vote by union members on Oct. 20-21, Fiat Chrysler's entry-level workers will start at \$17 an hour, up from \$15.78.

45%

Drop in the cost of labor per vehicle at Fiat Chrysler from 2007 to 2014

The union didn't win a cap, similar to one at **Ford Motor**, on the number of Tier 2 hires. The wage increases are a gain for a union that has spent most of the past decade making concessions. But the big winner is Fiat Chrysler, which under the proposal will continue to keep labor costs below those of its U.S. competitors.

"I thought the UAW would say, 'Get to \$30 and cap Tier 2 at 25 percent,'" says Ron Harbour, a partner at New York consulting company Oliver Wyman Group. "I'm shocked that they didn't push harder for that."

After Fiat purchased Chrysler out of its 2009 bankruptcy, it reduced its average labor costs by hiring entrylevel workers who were paid lower wages and weren't entitled to costly pensions or retiree health benefits. To keep up with growing demand for its popular Jeep SUVs and pickup trucks, the automaker has hired more than 15,000 workers over the past six years, most of them starting at \$15.78 an hour, or \$32,822 a year. Adjusted for inflation, that's less than Henry Ford paid his workers in 1914. It's also just \$2,000 more than the starting price of a Jeep Grand Cherokee.

Nearly half of Fiat Chrysler's 36,000 U.S. workers make less than \$20 an hour, according to the Center for Automotive Research in Ann Arbor, Mich. Ford, the lone U.S. automaker to avoid bankruptcy during the financial crisis, also pays its entry-level workers \$15.78 an hour to start, but under its existing contract it can't have more than 28 percent of its UAW workforce at that level. If it hits that threshold, Ford bumps some workers up to \$28 an hour, the top of its pay scale.

In 2008, UAW labor accounted for 15 percent of the cost of a new vehicle among the Big Three, according to the auto research center. Last year, that dropped to 6.7 percent. Fiat Chrysler's labor cost, the lowest in the industry

in recent years, fell 45 percent from 2007 to last year, the group reports. The company's hourly workforce is the cheapest in Detroit. Per vehicle, Fiat Chrysler pays \$1,771 for UAW labor, compared with about \$2,400 for Ford and General Motors.

If UAW members vote for the Fiat Chrysler deal, the union will then begin negotiating with GM or Ford. Consultant Harbour expects the UAW to push for a limit on the number of lower-wage workers at GM and retain Ford's cap. That would leave Fiat Chrysler as the only major U.S. automaker able to hire as many entry-level workers as it wants. "If they do that, Fiat Chrysler will have a huge advantage from a total labor-cost standpoint," he says. Jodi Tinson, a spokeswoman for Fiat Chrysler, declined to comment. UAW spokesman Brian Rothenberg says the agreement "addresses key member concerns on issues like wages, health care ... while still ensuring members' longterm job security."

Even with higher labor costs, GM and Ford are more profitable than Fiat Chrysler. All three saw declines last year: Ford's net income fell 56 percent, to \$3.19 billion; GM's earnings slid 26 percent, to \$3.95 billion; and Fiat Chrysler's declined 37 percent, to \$568 million.

Fiat Chrysler Chief Executive Officer Sergio Marchionne has been open about the industry's weaknesses and Fiat Chrysler's search for a merger partner. Consolidation will help cover development costs, he says, and boost returns. The downside for the UAW in such an outcome would be potential job losses if production lines are combined.

Ford has said it isn't interested in a merger, and GM, Marchionne's preferred partner, has said it's busy overcoming last year's recall crisis and its own emergence from bankruptcy six years ago. Few in the industry, however, dispute Marchionne's logic or his math. —Mark Clothier

The bottom line Even with a wage increase for all workers, Fiat Chrysler will continue to have the lowest labor costs in Detroit.

Edited by Dimitra Kessenides and David Rocks Bloomberg.com

Briefs

By Kyle Stock

Trimming Twitter

Twitter said it would lay off about 8 percent of its workforce, as it struggles to add users to its micromessaging platform. The company said the 336 exiting employees would get generous severance packages. The downsizing exacerbated a swoon in its stock, which is down about 43 percent since late April. • Wal-Mart lowered its sales outlook for the year and warned that investment in improving its Web store would eat into 2016



Condé Nast added Pitchfork Media to its magazine empire for an undisclosed sum. In addition to music reviews, Pitchfork has a thriving concert business.

The value of genetics startup 23andMe as it raised an additional \$115 million in venture capital financing. The company is still at odds with regulators over its \$99 mail-in DNA test.

income next year, but the company expects a decline of up to 12 percent. A new plan to buy back \$20 billion in stock didn't prevent Wal-Mart shares from dropping 10 percent immediately

after the grim forecast. Scandal-ridden Volkswagen said its coming diesel models will include costly emissionscutting systems that were absent in a range of recent models that the company admitted were rigged to cheat pollution tests. Meanwhile, VW's head of North American operations. Winfried Vahland, resigned, just three weeks after being tapped for the job. • If • Uber started selling same-day package delivery to businesses in Chicago, San Francisco, **CEO**

profit. Analysts had predicted a slight increase in Wal-Mart

and New York. Dubbed UberRush, the service, which on average costs \$5 to \$7 per trip, is the latest step in Uber's bid to be a logistics provider. • 4 • A U.S. jury ruled that Apple used a University of Wisconsin patent in its iPhone chips without permission. Apple denies the school's infringement allegations, arguing the patent is invalid. The company, which is appealing, could face up to \$862 million in damages.



Wisdom

Data will become the biggest production material in the future. It will become a public resource like water, electricity, and oil." Alibaba Chairman Jack Ma

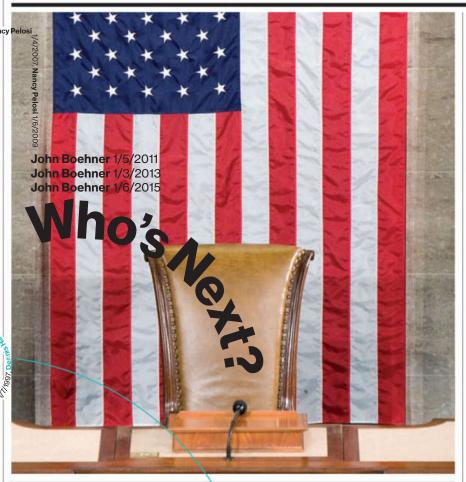
Politics/ **Policy**

A More **Perfect** Union

Speakers of the House: Frederick Muhlenberg 4/1/1789, Jonathan Trumbull 10/24/1791, Frederick Muhlenberg 12/2/1793, Jonathan Dayton 12/7/1795, Jonathan Dayton 5/15/1797, Theodore Sedgwick 12/2/1799, Nathaniel Macon 12/7/1801, $\textbf{Nathaniel Macon}\ 10/17/1803, \textbf{Nathaniel Macon}\ 12/2/1805, \textbf{Joseph Varnum}\ 10/26/1807, \textbf{Joseph Varnum}\ 5/22/1809, \textbf{Henry}\ 10/26/1807, \textbf{Joseph Varnum}\ 10/26/1807, \textbf{Joseph V$ Clay 11/4/1811, Henry Clay 5/24/1813, Langdon Cheves 1/19/1814, Henry Clay 12/4/1815, Henry Clay 12/1/1817, Henry Clay 12/6/1819, John Taylor 11/15/1820, Philip Barbour 12/4/1821, Henry Clay 12/1/1823, John Taylor 12/5/1825, Andrew Stevenson

October 19 - October 25, 2015

/6/1999, Dennis Hastert 1/3/2001, Dennis Hastert 1/7/2003, Dennis Hastert 1/4/2005, ${f z}$



Congress dithers over a new leader as funding deadlines loom

Republican,

was elected when Gingrich's presumed

to an affair

"This is not something I think we should play chicken with"

In the winter of 1855, members of the newly elected 34th Congress gathered in Washington to elect a speaker. More than 21 candidates put their names forward. It took 133 ballots and two months before the House of Representatives finally arrived at their choice: Nathaniel Banks of Massachusetts, a member of the anti-Hastert, an Illinois

immigrant Know-Nothing Party who went on to become a Republican and a major general in the Union Army.

successor, Bob By those standards, the Livingston, resigned spectacle afflicting the after admitting Republicans who control the 114th Congress doesn't seem so bad. Republican John Boehner, who'd repeatedly clashed with conservatives in his own party, abruptly announced

on Sept. 25 that he'd step down from the speakership and retire from his House seat. He says he'll stay on until a replacement is elected.

The problem? Treasury Secretary Jack Lew has warned that Massachusetts Congress has only until

Nov. 5 to reach an agreement on raising the debt

vote since 1913 limit or risk a U.S. default. Legislators must also agree by Dec. 11 on a spending plan for 2016 to prevent the government from shutting down. The turmoil within the Republican ranks signifi-

cantly raises the odds of one or both fiscal calamities happening. "Time is of the essence," says Appropriations Committee Chairman Hal Rogers, a

Republican from Kentucky.

Many Republicans initially thought they could easily elevate Majority Leader Kevin McCarthy (R-Calif.), Boehner's second-in-command, but he shocked his colleagues by pulling

Taylor, of New York, backed the Missouri Compromise in 1820. He told his son he lost his third speakership because of his "direct opposition to slavery"

his name from contention on Oct. 8 just minutes before a vote, citing the need for party unity. The

At 30, Hunter, of Virginia, took the chair after 11 ballots amid infighting

between Whigs and

Democrats

three dozen members of the hardline Freedom Caucus, who have been unwilling to accept compromises that would result in increases in government borrowing or spending, had said they would oppose his candidacy, potentially requiring him to grant them concessions that would weaken the speakership in order to win.

Ways and Means Committee Chairman Paul Ryan (R-Wis.), the party's 2012 vice presidential nominee, has also been hesitant to run as a consensus candidate. "He chooses his battles," says Indiana Republican Marlin Stutzman. Like Boehner, Ryan has been open to compromises with Democrats, most strikingly in 2013, when he negotiated a budget deal that raised spending. He also voted for the bailouts in 2008, at the height of the financial crisis. Those votes won't be forgiven by party members who want ideological purity. "I love Paul, he's one of the smartest guys here. But back in 2008 there were a number of us that committed that we simply could not ever support a speaker who fought so hard to pass the Wall Street bailout," says Representative Louie Cohmert of Texas, a Freedom

Gillett, a Caucus member.

Republican, won

on the ninth round

Insistence by the Freedom Caucus on cutting funding to Planned Parenthood as a in the only multiballot condition of passing federal

spending legislation-a cut Obama promised to veto-forced Boehner to draw on Democratic votes to avoid an Oct. 1 government shutdown. The fight prompted his decision to resign. Members of the caucus are likely to resist again when the short-term government funding measure Boehner helped shepherd runs out on Dec. 11, no matter who's in the speaker's chair.

Banks won the longest speaker election in House history, beating William Aiken of South Carolina on the 133rd ballot

lead a special

12/3/1827, Andrew Stevenson 12/7/1829, Andrew Stevenson 12/5/1831, Andrew Stevenson 12/2/1833, John Bell 6/2/1834, James Polk 12/7/1835, James Polk 9/4/1837, Robert Hunter 12/16/1839, John White 5/31/1841, John Jones 12/4/1843, John Davis 12/1/1845, Robert Winthrop 12/6/1847, Howell Cobb 12/22/1849, Linn Boyd 12/1/1851, Linn Boyd 12/5/1853, Natha niel Banks 2/2/1856, James Orr 12/7/1857, William Pennington 2/1/1860, Galusha Grow 7/4/1861, Schuyler Colfax 12/7/1863, Schuyler Colfax 12/4/1865, Schuyler Colfax 3/4/1867, Theodore Pomeroy 3/3/1869, James Blaine 3/4/1869, James Blaine 3/4/1871, James Blaine 12/1/1873, Michael Kerr 12/6/1875, Samuel Randall 12/4/1876, Samuel Randall 10/15/1877, Samuel Randall 3/18/1879, Joseph Keifer 12/5/1881, John Carlisle 12/3/1883, John Carlisle 12/7/1885, John Carlisle 12/7/1885, Thomas Reed 12/2/1889,

A Bill: U.S. Customs plays trick or treat 35

"We have emasculated ourselves because we have pretty much conceded that we don't have the power of the purse," says Representative Raúl Labrador of Idaho, a founding member of the Freedom Caucus. Conservatives forced a 16-day partial government shutdown in 2013 in an unsuccessful effort to cut off funding for Obamacare. Grow, of Pennsylvania,

Congress has struggled to was elected to increase the debt limit since session convened Republicans won control of to authorize war the House in the 2010 elec-Confederate states tions and neared the brink of default in 2011 and 2013. Standard & Poor's downgraded U.S. debt for the first time in 2011, to AA+ from AAA. "This is not something I think

we should play chicken with," says

Representative Bill Pomeroy served one Flores of Texas, chairman of the Republican Study Committee, which includes about 170

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day-the shortest speakership—after Colfax resigned to become vice president in the **Grant administration**

members of Congress. Still, he adds, "on the debt ceiling the American people want to see something positive. They don't want to just see an increase."

Flores is among those who have said they'll consider running for speaker if Ryan doesn't. A number of lawmakers, including Rogers of Kentucky, have ruled out a run under any circumstances. Some have suggested that an interim speaker may emerge from the ranks of members who aren't seeking reelection next year. That group includes John Kline of Minnesota and Candice Miller of Michigan.

Boehner, working with Senate Majority Leader Mitch McConnell (R-Ky.), has already reached out to Senate Democrats and the White House to begin negotiating on both the debt ceiling and the spending caps.

They're seeking entitlement cuts they can sell to their Republican colleagues. With nothing more to fear from his conservative Knay Jegylyst Je

antagonists, Boehner has greater freedom to make a deal they don't like. Minority Leader (D-Calif.), who has come to Boehner's aid in the past, has made it clear she's happy to help. "We have important work to do," she said on Oct. 8. "Republicans need to set aside their calendar of chaos and instead join us."

The Freedom Caucus, which initially celebrated Boehner's resignation as a win, has begun to show signs of strain.

California Representative Tom McClintock announced he was quitting in mid-September. After Boehner's resignation, measures against the Representative Reid Ribble of Wisconsin became the second

> public departure. "I was a member of the Freedom Caucus in the very beginning because we were focused on making the process reforms to get every member's voice heard and advance conservative policy," he said in an Oct. 8 statement. "When the speaker resigned and they pivoted to focusing on the leadership race, I withdrew." —Billy House, Erik Wasson, and Terrence Dopp, with Sahil Kapur

The bottom line While Republicans search for a leader, outgoing Speaker John Boehner is working with Democrats to keep the government open.

Housing

Texas Towns Push Back on Instant Slums

- Developers say they're offering much-needed low-cost housing
- "I haven't seen anything at this scale anyplace else"

It takes about an hour to drive from downtown Houston to Plum Grove, Texas, the kind of reasonable commute that's attracted oil industry executives to other northern suburbs such as the Woodlands. Trey Harris, whose company, Colony Ridge Land, is developing 9,000 lots in Plum Grove, is after a different market: poor Latino laborers who can't afford the city.

Harris is selling half-acre patches of dirt at \$25,000 apiece with basic water and sewage hookups. Colony Ridge's

website advertises several subdivisions in Plum Grove with names like Grand San Jacinto and Camino Real, and notes commuters to Houston will soon have access to a newly built highway nearby. "You have no place to raise your little animals?" says one Spanish-language ad the company is running on Facebook, accompanied by images of blue skies and women on horses. "You lack space in your apartment?" Colony Ridge offers financing in return for as little as \$500 down, with no credit check, though interest rates run as high as 12 percent. "We sell to them at a price point that's significantly lower than they can find anywhere else," says Harris. "It's an opportunity for them."

Bare-bones developments are nothing new along the U.S. border with Mexico, where they're known as colonias-Spanish for neighborhoods. They emerged during the migrant labor boom of the 1950s, when agricultural workers first came in large numbers from Mexico. While colonias can be found in Arizona, California, and New Mexico, Texas has by far the most people living in them-about 400,000, according to state figures.

In 1989, amid concerns about a potential cholera outbreak along the border, Texas cracked down on colonias, passing strict model subdivision rules, including requirements that lots be properly drawn into plots and equipped with water and sewage. In exchange, counties with colonias received state funds to improve water service. The rules led to better living conditions in border colonias but gave rise to a new problem: subdivisions where lots have basic infrastructure but lack everything from sidewalks to street lights. "People have substandard housing and either cannot afford to connect to utilities or their house is not up to code and they're paying fines for noncompliance," says Jordana Barton, a senior community development adviser at the Dallas branch of the Federal Reserve, which refers to the developments as "new colonias."

Built on newly cleared timberland, the Colony Ridge development in Plum Grove, which is part of Liberty

Nancy Pelosi

3/19/1909, Champ Clark 4/4/1911, Champ Clark 4/7/1913, Champ Clark 12/6/1915, Champ Clark 4/2/1917, Frederick Gillett 5/19/1919, Frederick Gillett 4/11/1921, Frederick Gillett 5/19/1919, Frederick Gillett 6/11/1921, Fre

Colony Ridge's Grand Jacinto

\$25,000

Cost of a half-acre lot in a Colony Ridge development. The developer offers 20-year financing at 12 percent interest with \$500 down.

\$221,000: Median price for a single-family home in the Houston area.



■ County, is the largest of the new colonias, which usually cover fewer than 300 lots. People already live there in trailers or under tarps tossed over peeled pine logs or tool sheds. "I haven't seen anything at this scale anyplace else," says John Henneberger, an expert in housing laws at Texas Housers, an Austin-based nonprofit that's tracked new colonias outside Austin, Dallas, and San Antonio.

Plum Grove's 600 longtime residents, almost all white, oppose Colony Ridge's building plans. They fear their new neighbors—who could number as many as 30,000 once all the lots are sold—will overwhelm local schools and public services, as well as bring crime into the area. "They're playing their mariachi music so loud your house is thumping at two in the morning," says Plum Grove city councilwoman Lee Ann Penton-Walker, who is proposing a municipal tax to pay for a police force to patrol the development.

Harris shrugs off the opposition, chalking it up to racism in a part of Texas where many residents fly the Confederate flag. "Some of the Rebel flag flyers, they don't like the color of my people's skin," he says, meaning his customers. Liberty County officials, who are also trying to slow developments like the Colony Ridge projects, say that's not so. "To me it's not a

racial issue—I speak Spanish as good as I speak English," says Liberty County Judge Jay Knight. The county is moving to increase the minimum subdivision lot size to one acre, which would make new colonias financially unfeasible. "I'm gonna put it this way," says Knight. "John Steinbeck could not write a better book." —Lauren Etter

The bottom line A housing crunch in Houston is pushing Latino laborers to buy land in rural areas with only basic municipal services.

Health Care

Massachusetts' Big Bet On Biotech Pays Off

- A 2008 law providing subsidies to startups has generated revenue
- "There's something very special that happens here"

Last year the tenants of a single glassand-steel building in Cambridge, Mass., raised \$201 million in seed stage venture capital funding, more than the entire Swiss life-science and biotech industry. The building houses **LabCentral**, an incubator for biotech startups that opened in November 2013, renting space to would-be entrepreneurs. LabCentral was the brainchild of a venture capitalist named Peter Parker, but he owes its existence to Massachusetts taxpayers, who fronted \$5 million for the project. "That was most of the buildout and the big sunk cost that no investor would have ever put up," he says.

The investment was made under the state's 2008 Life Sciences Act, which authorized \$1 billion in investments, grants, loans, and tax breaks over 10 years to give the local biotech industry a lift over rivals in California. The incentive package has paid off for Massachusetts, which won a third of all U.S. seed stage funding for biotech from 2009 to 2013-more than \$761 million, according to the MoneyTree Report, a joint study produced by PwC and the National Venture Capital Association. Nine of the world's 10 biggest drug companies have opened offices or research and development labs in the state over the past few years. And R&D jobs in the industry have grown more than 21 percent over the same period, according to the Massachusetts Biotechnology Council, nearly three times the U.S. rate.

States usually use tax incentives to attract established companies. Massachusetts chose a different path: Using channels such as LabCentral, it made a bet on homegrown companies. Where other states have tried

to use subsidies to create tech hubs from nothing, Massachusetts instead focused on unlocking the commercial potential of research already being done at Harvard, MIT, and the University of Massachusetts.

"We knew that we shouldn't presume to substitute government for the private sector," says Deval Patrick, who as governor of Massachusetts signed the subsidies into law. (He's now a managing director at Bain Capital.) "If you can attract enough of the small companies that are on the cutting edge of research, the big companies will follow because they want a front-row seat," says Barry Bluestone, a Northeastern University economist the state hired to measure the program's impact.

Seventy percent of the money disbursed so far has been in the form of direct capital investments that were used to put up buildings and buy equipment. Every dollar Massachusetts spent under the program boosted tax revenue by \$1.66, according to Bluestone.

The clustering effect also makes it more difficult for companies to leave the state as they grow. "Everyone that you want to see and meet are also here," says Will Adams, president of **Riparian Pharmaceuticals**, a LabCentral tenant that received \$200,000 from Massachusetts. "It is exceptionally easy to meet anyone for a coffee for an hour, from a high level to a low level, from a large pharma company to the investors that fund small companies."

Riparian is developing drugs to prevent the breakdown of the lining of blood vessel walls. It was co-founded in 2013 by Adams and Guillermo García-Cardeña, a professor at Harvard Medical School, and was brought into LabCentral by Johnson & Johnson Innovations, J&J's venture capital division. "There's something very special that happens here," says Robert Urban, head of Johnson & Johnson Innovations in Cambridge. "It's about density." — Doni Bloomfield

The bottom line State subsidies for startups helped Massachusetts win more than \$761 million in seed stage biotech funding from 2009 to 2013.

Bloomberg.com

ABill

By Todd Shields

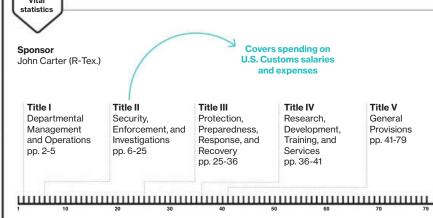
Costumes or Clothes?

H.R. 3128 Department of Homeland Security Appropriations, 2016

The essentials



- In July the congressional committee overseeing appropriations for U.S. Customs and Border Protection passed its funding bill for 2016. A committee report submitted to the full House alongside the bill recommended that the agency review its system for levying import duties on costumes. Some importers, the committee wrote, believe the way tariffs are applied "is too subjective and leads to disparate treatment of similar imported items."
- The legislative knuckle rap can be traced to an ongoing lawsuit filed by Rubie's Costume Co. in Queens, N.Y., challenging duties imposed on its Premier Plush Nine Piece Santa Suit in 2013. Customs exempted beards, wigs, and hats from duties because they were clearly "festive articles," but charged tariffs of 10 percent to 32 percent on red jackets, pants, gloves, and toy sacks because their quality was "consistent with well-made articles of apparel," according to the agency.
- "Festive articles," says Customs, are "flimsy, nondurable, and not normal articles of wearing apparel." Better-made stuff is taxed the same as regular clothes, giving importers an incentive to bring in items that won't last past Nov. 1. "It's just silly," says Michele Biordi, executive director of the Halloween Industry Association, which argues that red pants and white beards should be taxed alike. "No one's going to wear a Santa suit to work, or in everyday life."



"I'm amazed that they kept the research going as long as they did"

Pratt & Whitney's new PurePower Geared Turbofan aircraft engines are impressive beasts. Scheduled to enter commercial service before the end of the year, they burn 16 percent less fuel than today's best jet engines, Pratt says. They pollute less. They have fewer parts, which increases reliability. And they create up to 75 percent less noise on the ground, enabling carriers to pay lower noise fees and travel over some residential areas that are no-fly zones for regular planes. Airbus, Bombardier, Embraer, Irkut, and Mitsubishi have certified the engines for use on their narrowbody craft. JetBlue, Lufthansa, Air New Zealand, Malaysia's Flymojo, and Japan Airlines are among the engine's 70 buyers in more than 30 countries.

To people outside the aircraft business, what may be most remarkable about the engines is that they took almost 30 years to develop. That's about 15 times as long as the gestation period of an elephant and unimaginably longer than it takes to pop out a smartphone app. Could Pratt have gotten the hardware out faster? Probably. But industrial innovation on the scale of a commercial jet engine is inevitably and invariably a slog-one part inspiration to 99 parts perspiration.

In Pratt's case, it required the cooperation of hundreds of engineers across the company, a \$10 billion investment commitment from management, and, above all, the buy-in of aircraft

makers and airlines, which had to be convinced that the engine would be both safe and durable. "It's the antithesis of a Silicon Valley innovation," says Alan Epstein, a retired MIT professor who is the company's vice president for technology and the environment. "The Silicon Valley guys seem to have the attention span of 3-year-olds."

The PurePower GTF began to take shape in 1988, when Pratt staffers in East Hartford, Conn., including a 28-year-old engineer

named Michael McCune, started developing a gizmo to slow the fan-the big rotating blades at the front of the engine that provide most of a jetliner's propulsion. For planes flying at typical speeds, a slow fan that moves large volumes of air at a moderate velocity is more efficient than a fast-spinning fan that accelerates a smaller volume of air. (The slow fan's also quieter.)

The problem was that the fan was attached to the same shaft as two other parts of the jet engine, the lowpressure turbine and low-pressure compressor. Those parts would be more efficient if they ran faster, not slower. Sharing a shaft was a compromise that hurt each part's performance and left nobody happy.

The solution McCune and his co-workers pursued was one that had already been used successfully on turboprop planes: a gearbox between the shaft and the fan that lets the fan run slower while the compressor and turbine run faster. The gearing approach hadn't been tried at the scale of a commercial jetliner because the conventional wisdom was that it would be too heavy and wear out too quickly. "We started studying all gearboxes in service" to determine what the obstacles really were, says McCune. The biggest challenge in scaling up

was how to keep the gearbox, which is about 20 inches in diameter and weighs about 250 pounds, from being torn apart if there was a shock that wrenched the fan in one direction and the shaft in another. Adding steel for stiffness would make the engine too heavy. To put some give into the



PHOTOGRAPH BY EVA O'LEARY FOR BLOOMBERG BUSINESSWEEF



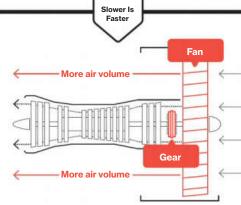
Water, water, everywhere—in need of Google mapping 38 A hotel app that peeks under the covers 39

Innovation: An air purifier for the great outdoors 40

• The gear transmits power from the turbine to the large fan in the front of the engine, which does most of the propulsion.



2 The low-pressure turbine drives the center gear. The gears around it drive the fan.



- ❸ The gear allows the fan to turn more slowly. A slow fan that moves large volumes of air is more efficient than a fast-spinning fan that moves less air.
- ◆ Most of the air drawn through the fan bypasses the engine core, increasing the engine's efficiency. As a bonus, the slowerturning fan also makes much less noise

had to be protected from beancounting Pratt executives, says Epstein. "Sometimes we spent a lot. In other years we hid him [McCune] behind the curtain and slipped him some sandwiches so management wouldn't know what the investment was," he jokes.

By 2008 the engine was ready for testing. Pratt engineers deliberately broke a prototype, letting a fan blade fly off to test whether the accident would destroy the gears. Afterward, Epstein says, "we took the gearbox apart, and it looked brand-new. You could even see the machining marks on the gears."

"There were a lot of false starts there, but they knew they had a concept that would work," says Ernest Arvai, a partner in commercial aviation consultant AirInsight. "I'm amazed that they kept the research going as long as they did. I think they've got a winner there."

Epstein gives much of the credit for the project to McCune, who has 66 patents to his name. "Mike has succeeded in what many people thought was an impossible challenge," he says.

One consequence of the engine's decades-long development is that it's missed the window to be considered for inclusion on the latest generation of widebody jets, says George Ferguson, a senior analyst at Bloomberg Intelligence. In the more important market for narrowbody jets, Ferguson says, the large fan makes the engine too big for **Boeing**'s 737 Max, which has low wings. On the plus side, Pratt & Whitney has fought **General Electric** nearly to a draw on airlines' orders for engines for the

Airbus A320neo family (46 percent vs. 54 percent, respectively, among orders in which an engine was chosen). And the PurePower GTF is the exclusive engine for the new narrowbodies from Bombardier, Embraer, and Mitsubishi. The jet engine market-share war plays out over decades. Speaking of the new engine, United Technologies Chief Executive Officer Gregory Hayes told analysts earlier this year: "Long-term, we like where we are." — Peter Coy

The bottom line The GTF's almost 30-year incubation period cost Pratt some big customers, but the engine's efficiency has attracted others.

Entertainment

Why Roku Isn't Going After Gamers

- Unlike Amazon and Apple, it doesn't see games as a win
- "It'll be extremely costly for them to cultivate and subsidize"

When Amazon.com, Apple, and Google released updated versions of their streaming devices this fall, all three companies pitched them as a way to play video games on TV. Roku is doing the opposite. While discussing the company's strategy shortly before the Oct. 6 release of the Roku 4, Chief Executive Officer Anthony Wood had to be pressed to even mention gaming.

"Our attitude on gaming is that it's

system, McCune's team attached the gearbox rigidly to the fan but somewhat loosely, with bendable metal baffles, to the compressor/turbine shaft and the engine case.

Pratt engineers borrowed technology and ideas from other divisions of parent **United Technologies**: notes on gears from **Sikorsky**, which makes turbine-powered helicopters; bearing know-how from **Pratt & Whitney Canada**, which makes the geared PT6 engine for smaller turboprop aircraft; and simulations of how lubricants move through the gear from the United Technologies Research Center. It also got special parts from **Timken**, the 116-year-old bearing maker, and permission from NASA to use its wind tunnels in California and Ohio.

At times, the extent of the operation

■ a feature, not a strategy," Wood said. Roku has offered some games for years, but the CEO said he doubts his company's hardware or any of its direct competitors will make much headway with hard-core gamers. Microsoft Xbox and Sony PlayStation consoles will continue to win over the gaming elite, according to Wood, and there simply isn't enough overlap between casual smartphone games and Call of Duty to convert mobile gamers into the couch-

"In terms of the impact these devices have had on gaming, it is close to none so far."
——David Cole, CEO of DFC Intelligence

bound variety. "We think the middle ground of streaming players offering games is not really a viable market," he said.

Devices such as the **Nvidia** Shield and PlayStation TV, which

were built as streaming alternatives to expensive consoles, have yet to attract much of an audience. **Ouya**, a startup that built an inexpensive gaming console on Google's Android operating system, proved popular on Kickstarter but not beyond. In July, gaming hardware maker Razer bought Ouya and discontinued its console line. "In terms of the impact these devices have had on gaming, it is close to none so far," says David Cole, founder and CEO of researcher DFC Intelligence. "We think that is likely to change in the future, but not necessarily the near future."

Apple's pursuit of gamers makes sense because of the company's dominance in mobile, says Joost van Dreunen, CEO of gaming analyst SuperData Research. Roku doesn't have relationships with developers of mobile apps. "It'll be extremely costly for them to cultivate and subsidize an ecosystem of third-party developers who would ultimately build some killer app," Van Dreunen says. Amazon, which also lacks Apple's ties to the independent development community, has been building its own network of studios to make games for Amazon gadgets.

There are some obvious reasons not to build games for streaming devices, says Todd Harris, the co-founder and chief operating officer of **Hi-Rez**, a 200-person game studio based in suburban Atlanta. Hi-Rez makes games for PCs and gaming consoles and is working on one for mobile devices, but Harris says he doesn't plan to develop anything for

set-top boxes. He's skeptical that the boom in mobile gaming can translate to success for similar games made to be played on televisions.

"A lot of the most compelling content is based on touch control and short play sessions," Harris says of mobile gaming. TV games won't work that way, so developers will need to treat them as new products altogether. "There really has to be tremendous adoption of the set-top boxes to get away from that and design games with different play patterns," he says.

According to Roku CEO Wood, his competitors are misjudging the market because of the incredible success of mobile games. "They want to replicate that on TV, but they can't because gaming has shifted to mobile," he said. Instead, he's focusing on adding networks. On Oct. 8, Roku announced its fourth-generation player will be the first to include HBO Now, the cable channel's standalone streaming service. "Our view is pretty simple," said Wood. "People want to watch TV on TV." —Joshua Brustein

The bottom line Roku says games stuck somewhere between console and mobile quality aren't going to help its rivals win customers.

Data

Mapping America's Disgusting Waterways

- ► An Oregon nonprofit works with Google to index trouble spots
- It's "developed a way to do that quickly and inexpensively"

Northern California's Russian River tends to be a pretty sedate blur of sandy beaches and redwood groves, so when Joe Whitworth and his team row a camera-studded green orb down a 60-mile stretch one morning, they

catch some long stares. "You with the government?" asks one swimmer. Another points at the eye of the Google Trekker, essentially a raftborne version of the search giant's



Street View cars, and asks, "What's your crystal ball for?" Whitworth's modest answer: saving the U.S. water supply.

Whitworth is president of the Freshwater Trust, a 45-employee Portland (Ore.) nonprofit taking on the unenviable task of fixing America's broken watershed. The U.S. Environmental Protection Agency classifies 79 percent of freshwater lakes, rivers, and streams as threatened or imperiled because of pollution, excess quantities of nitrogen or phosphorus, or water that's warming too much for fish. The Freshwater Trust has joined with **Google** to take the first step toward a solution, using its advanced cameras to more quickly survey waterways.

While that may sound like a baby step, it's an important one. Watershed surveys typically take months or years of scientific fieldwork, if cash-strapped federal agencies do them at all. Solid data on rivers' levels of pollution or nitrogen are scarce. When the government or nonprofits try to figure out how to improve fish habitats or reduce runoff, "it's like trying to drive without a speedometer, GPS, or even a gas gauge," Whitworth says.

Like Google's car-mounted cameras, the Trekker snaps 15 photos every 2.5 seconds, and the Freshwater Trust team uploads the shots from its so-called BasinScout to Google Maps. Besides offering laypeople a virtual river tour, the images help scientists assess the quality of the area's fish habitat. Pictures from Whitworth's day on the Russian River are a little grim. Some riverbanks are being held up by stacks of crushed cars from the 1970s. Others are anchored by 20-foot, nonnative grasses called arundo, which provide less shade for fish and wildlife than native cottonwoods.

Whitworth's raft also tows instruments that measure water temperature, levels of phosphorous, and oxygenation. His team feeds that data into software with information from

climate records, county land rights filings, and soil tests by the U.S. Geological Survey. The Freshwater Trust's model can help pinpoint which farms most need



government help to install a more efficient irrigation system, or which areas need more wetlands restoration to protect them. "The Freshwater Trust has developed a way to do that quickly and inexpensively," says Matt Elliott, principal at consulting firm California Environmental Associates.

The nonprofit is relying on Google for help crunching the data, as well as for the loaner camera equipment. "They are the content experts," says Karin Tuxen-Bettman, a geo data strategist at Google. "We can lend them the tools." Most of the 200-odd nonprofits that use her team's hardware only photograph threatened landscapes, she says.

Long a regional organization focused on protecting Oregon's salmon and steelhead trout, the Freshwater Trust has spent much of the past decade trying to better quantify waterway damage throughout the U.S. Whitworth is pitching the federal government on a system of offset credits for water pollution akin to the carbon offsets traded among utility companies and other industrial polluters. Peter Gleick, president of the Pacific Institute, a Californiabased water policy think tank, calls such trades "win-win," because it's cheaper for many companies to buy offset credits than to curb pollution.

Others argue that such a system lets polluters off the hook. Nina Bell, executive director of Northwest Environmental Advocates, says such offset deals entail too much guesswork by politicians instead of scientific analysis. And the scale of America's watershed problems can be staggering. Wild Pacific salmon populations hover below 10 percent of their historical levels. Excess water use in California

has drawn salt water 12 miles inland in the farming hub of Salinas Valley. Each spring, nutrient runoff produces an oxygen-depleted "dead zone" the size of Connecticut in the Gulf of Mexico.

Whitworth says those issues are challenging but solvable. First, he says, he's trying to raise at least \$25 million to finance his nationwide waterway index. The Freshwater Trust plans to charge companies and municipalities for some of the data to finance the map's completion but will ultimately make the data free to everyone, Whitworth says. "Eventually, we'll be able to monitor the condition of our rivers in real time. That will help us make better decisions." —Frederick Reimers

The bottom line The Freshwater Trust says it needs at least \$25 million to finish mapping the nation's waterways, a first step to fixing them.

E-Commerce

An App Gives India's Hotels a Closer Look

- Oyo attracts foreign investment and fresh competition
- "If you can't track it, you can't make it nicer"

At age 17, Ritesh Agarwal spent three months living out of a suitcase. His mom wanted him to get an engineering degree; instead, he began hopping among dozens of inns and bed-and-breakfasts throughout India, briefly manning reception desks and cleaning rooms at one of them. It was

research, he says, for an online database of reliable places to stay. By the end of that trek, in 2011, he was convinced the industry's biggest problem was a lack of consistent quality, especially among the independent budget hotels that make up almost 60 percent of India's \$7.2 billion lodging market. Respectable-looking exteriors often hid leaky faucets and stained sheets.

Agarwal's solution was a hotel-booking app called **Oyo Rooms**, which lets room seekers choose from an approved list his team has selected based on certain minimum standards of service, cleanliness, and safety. The hoteliers agree to maintain those standards and a price. Oyo takes a 10 percent to 30 percent cut of the bookings. "When you book a room through Oyo, you know exactly what you're going to get," Agarwal says.

Founded in New Delhi in 2013, the company says it lists about 30,000 rooms in 120 Indian cities.

\$7.2

Estimated size of India's lodging market Hundreds of staffers in the field evaluate properties on 200 factors, from the quality of mattresses and linens to maximum and minimum shower temperatures, according to the company's vice president

for product management, Anurag Gaggar. Hotel owners are often asked to buy new linen or apply a fresh coat of paint to get or maintain their Oyo listing, Gaggar says. Field staffer Krishan Kumar says he visits 32 hotels each week, recording the details of his inspections on his smartphone.

The next step, Agarwal says, is to incorporate more customer feedback, using poor reviews to encourage repairs. "If you can't track it, you can't make it nicer," he says.

Agarwal seeded Oyo with \$50,000 from a local startup accelerator, but he credits the company's continued existence largely to a \$100,000 fellowship from Peter Thiel, the PayPal co-founder who subsidizes students who drop out to start a company. Since then, Oyo has collected \$125 million in venture funding from the likes of **Sequoia**Capital and Japanese telecommunications company **SoftBank**, and it

Innovation

Smog Eater

I think everybody on planet earth should have the right to clear air. It's weird that we accept pollution as standard."

Form and function

The Smog Free Tower, which stands 23 feet tall, sucks in and cleans 1 million cubic feet of polluted air an hour, while using about as much electricity as a boiler.

Innovator Daan Roosegaarde

Age 36

Owner of Rotterdam design firm Studio Roosegaarde, which has 10 designers and engineers



Inhale Air is sucked into the prototype tower, located in a Origin Roosegaarde Rotterdam park. An internal began working electrode puts out ions that on outdoor air impart a positive charge to purification after a fine dust particles. particularly smoggy 2013 trip to China. Partners Dutch manufacturer **Environmental Nano** Solutions Europe **Funding** and researcher Roosegaarde says Bob Ursem helped Exhale A negatively charged he's invested the develop the tower. counter-electrode draws in cash equivalent of the dust particles. The air up a high-end BMW to 80 feet around the tower to build the tower. is, on average, 75 percent along with about cleaner than in the rest of the \$130,000 from

Next Steps

Roosegaarde says he's in talks with possible commercial partners, though he declined to name them. Jim Zhang, a professor of global and environmental health at Duke University, says the idea is novel and the principle sound, but that, aside from questions of cost, the tower could be impractical in less-than-ideal weather. "It will probably only work when the outdoor air is very steady," Zhang says. "If it's windy, it's going to be diluted very quickly." — Olga Kharif

Kickstarter backers.

city, Roosegaarde says.

d claims to be doing about \$200 million in bookings a year. There's plenty of room for growth, Agarwal says. India has about two hotel rooms for every 10,000 people, compared with 40 in China and 200 in the U.S. India's chainhotel inventory will rise 30 percent by 2020, consulting firm HVS estimates.

Oyo's founder comes with some baggage. A January investigation by Indian newspaper *Livemint* alleged that he pushed out early partners, withheld employee pay, and presented investors with inflated listings numbers. (Agarwal denies all of that.) In addition, many Indians aren't yet convinced that hotels are a worthwhile investment. The country's big chains reported a 57 percent occupancy rate

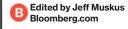
reported a 57 percent occupancy rate last year, an eight-year low, as more travelers stayed with relatives. "There are lots of hotels where customers go in thinking, 'Will there be rats in my room?'" says Chetan Kapoor, an analyst at researcher Phocuswright.

Besides providing reliable cleanliness, Oyo is trying to attract skeptical Indians by negotiating with hoteliers to keep prices low. The app's cheapest rooms go for less than \$15 a night, and the average is about \$22. A basic room at the budget hotel chain **Ginger** is \$32 a night.

Oyo's early success and interest from foreign investors have inspired rivals. **Zostel**, founded last year, has a roster of 600 hotels under its Zo Rooms brand and received \$30 million from New York investment firm **Tiger Global Management** in July. The competitors' "vigorous efforts" helped drive up online hotel bookings 32 percent, to \$80 million, in 2014, according to Phocuswright.

The rivalry is good news for hotel managers like Ashutosh Parashar, who opened the 21-room **Maven's House** six months ago in Gurgaon, a city near New Delhi. Early on, Oyo listed his rooms at a 75 percent discount and paid him the difference. "All these companies are fighting for customers, and they are investing money on us to make us successful," Parashar says. "That's great for us." —Adi Narayan

The bottom line Oyo has collected \$125 million in venture funding in two years, as it tries to change Indians' minds about hotels.





Markets/ Finance

October 19 - October 25, 2015







- ▶ Even Treasury officials aren't sure how government debt trades
- "This isn't your grandfather's market anymore"

On Oct. 15, 2014, officials at the U.S. Department of the Treasury were spooked by a burst of rapid-fire trading in the \$13 trillion market for U.S. government debt. Over a 12-minute span that morning, the yield on the benchmark 10-year Treasury note plunged from 2.02 percent to 1.86 percent, then just as quickly shot back up to within a few ticks of where it started.

The nosedive and rapid recovery were a rare episode of volatility for the Treasury market, which helps finance the U.S. government and, with \$500 billion in securities traded every day, is the largest and most active debt market in the world. Treasury yields have fluctuated that much only three other times since 1998, including the day central banks announced a coordinated cut in global interest rates during the height of the financial crisis in October 2008 and in August 2011, when Standard & Poor's lowered its credit rating on the U.S. This time, there was no apparent cause, leaving bankers, traders, and regulators mystified. Jamie Dimon, chief executive officer of **JPMorgan Chase**, called it "an event that is supposed to happen only once in every 3 billion years or so."

A year later, the Treasury Department still doesn't fully understand what happened during those 12 minutes. In a report released in July and produced in coordination with four other agencies, Treasury laid out a reconstruction that included enough analysis to impress even some highfrequency traders who had spent months on their own trying to piece together the events of the day. But the government couldn't come up with a full explanation of who or what triggered the price swings. More troubling, the report laid bare just how little regulators understand about the daily workings of the Treasury market, which has changed drastically over the past decade through technological innovation and the rise of electronic speed traders.

"The Treasury market has not been fully reviewed in over 15 years," says Antonio Weiss, a former investment banking executive who is leading the Treasury Department's deep dive into the mechanics of the market. "We are in the early stages of conducting such a review in light of the very significant changes that have occurred."

Weiss is playing a pivotal role just nine months after his nomination for a top Treasury post caused a rift between the Obama administration and Democratic lawmakers seeking a tougher line against Wall Street. Senator Elizabeth Warren led a populist campaign against Weiss, whom she portrayed as a symbol of government coziness with the financial sector. Weiss withdrew his name, took a job as a counselor to Treasury Secretary Jack Lew, and stepped out of the limelight.

Now the ex-Lazard dealmaker is the point man on one of the most pressing financial concerns for the government: understanding the day-to-day trading in Treasuries and why it seems to have become more turbulent than at any time since at least the 1970s. By one measure, outsize swings are occurring almost twice as often as statisticians would normally expect, according to data compiled by TD Securities.

The ups and downs are so prevalent that Treasuries have been more volatile than U.S. stocks this year. "This isn't your grandfather's market anymore," says Steven Meier, an executive vice president at **State Street**, a top investor in the Treasury market.

Uncertainty over when the Federal Reserve will raise interest rates is feeding some of the recent volatility, but regulators are also examining the impact of high-frequency traders, who use algorithms to buy and sell Treasuries in microseconds. Speed traders now account for about half the electronic trading in the Treasury cash market, up from 25 percent in 2008, according to research firm Tabb Group. During the most frenzied moments last year on Oct. 15, speed traders were responsible for about three-quarters of all trading. "We need to consider whether the race for speed, at this already advanced stage, helps or hurts market functioning,"

The level of opacity that still exists in the market for the debt issued by the largest economy in the world is stunning."

We at in McPartland, Greenwich

Associates

Weiss said in an August speech at the Brookings Institution in Washington.

Speed-trading firms, based mostly in New York and Chicago, got access to the electronic platforms to trade gov-

ernment bonds about a decade ago. Now 10 high-frequency firms regularly account for about half of all electronic trading in cash Treasuries, according to the government's report. The entry of speed traders has added competition and reduced the amount big banks charge clients that buy Treasuries. Also making the business less profitable are new financial regulations that require banks to hold more capital and use less leverage.

Wall Street's big bond dealers say they are now less willing to facilitate trades in Treasuries. In theory, that can exaggerate price swings and lead to brief periods of illiquidity. In truth, the biggest banks are simply filling more buy and sell orders internally, rather than on interdealer platforms, reducing the visibility that regulators have into the market.

On Oct. 9, researchers from the Federal Reserve Bank of New York said they found evidence that the swarm of orders placed by speed traders may be making the market appear more liquid than it really is, especially when investors look to move large blocks of Treasuries. When markets are running smoothly, speed traders provide efficient pricing and a steady supply of buyers and sellers, says Larry Tabb, chief executive officer of Tabb Group. "But when weird stuff happens, and it's happening in microseconds or milliseconds," he says, "it's kind of hard to take a pause and figure out what's going on."

While pieces of the Treasury market have raced into the Digital Age, a lot of trades are still made over the phone between dealers and clients. Regulators have "virtually no visibility" into those deals, says Weiss. "That has to change." In an Oct. 13 research note, Kevin McPartland, head of research at consulting firm Greenwich Associates, wrote that "the level of opacity that still exists in the market for the debt

issued by the largest economy in the world is stunning."

One obvious solution is to improve the system for tracking trades. Unlike in the stock and corporate bond markets, there is no real-time database for government bonds. While regulators can get access to data from private exchanges, the information isn't stitched together to provide a complete picture of market moves, and it's not disclosed to the public as it happens.

Weiss has spent much of his time talking to banks, hedge funds, exchanges, and speed-trading firms about potential fixes. In July he ran a closed-door meeting at Columbia University to discuss market structure. Weiss told the group, which included more than a dozen finance executives and academics, that Treasury was still looking into changes in the market and was wary of the potential for future risks, according to people in attendance. Part of Weiss's mission has been to counter complaints from the financial industry that regulations are the primary cause of less liquidity. "We've pushed back against some pretty simplistic arguments," he says. — Ian Katz, Silla Brush, and Alexandra Scaggs

The bottom line Treasury officials are looking at ways to make the \$13 trillion market for U.S. government debt less of a mystery.

Energy

Playing Pass-the-Risk In the Shale Patch

- ▶ With oil prices down, banks want their cash back now
- "Everyone in the chain was making money in the short term"

When **Whiting Petroleum** needed cash earlier this year as oil prices plummeted, **JPMorgan Chase**, its lead lender, found investors willing to step in. The bank helped Whiting sell \$3.1 billion in stocks and bonds in March. Whiting used almost all of the money to repay the \$2.9 billion

Markets/Finance

◀ it owed JPMorgan and its 25 other lenders. The proceeds also covered the \$45 million in fees Whiting paid to get the deal done, regulatory filings show.

Analysts expect Whiting, one of the largest producers in North Dakota's Bakken shale basin, to spend almost \$1 billion more than it earns from oil and gas this year. The company has sold \$300 million in assets, reduced the number of rigs drilling for oil to eight from a high of 24, and announced plans to cut spending by \$1 billion next year. Eric Hagen, a Whiting spokesman, says the company has "demonstrated that it is taking appropriate steps to manage within the current oil price environment." Whiting has said it will be in a position next year to have its capital spending of \$1 billion equal its cash flows with an oil price of \$50 a barrel.

As for Whiting's investors, the stock is down 36 percent, as of Oct. 14, since the March issue, and the new bonds are trading at 94¢ on the dollar. More than 73 percent of the stocks and bonds issued this year by oil and gas producers are worth less today than when they were sold, data compiled by Bloomberg show.

Banks' sell-the-risk strategy underpins the shale oil boom. Lenders extended low interest credit to wild-catters desperate for cash, then—perhaps remembering the 1980s oil bust—wheeled the debt off their books by selling new stocks and bonds to investors, earning sizable fees along the way. "Everyone in the chain was making money in the short term," says Louis Meyer, a special situations analyst at Oscar Gruss & Son. "And no one was thinking long term about what

they're going to do if prices fall."

North American oil and gas producers have sold \$61.5 billion in equity and debt since January, paying more than \$700 million in fees, according to data compiled by Bloomberg. Half the money was raised to repay loans or restructure debt, the data show. "Being there for our clients in all market environments, particularly the tough ones, is something we feel very strongly about," says Brian Marchiony, a JPMorgan spokesman. "During challenging periods, companies typically look to strengthen their balance sheets and increase liquidity, and we have helped many do just that."

Lenders have been setting aside cash to cover potential energy losses. JPMorgan bolstered its reserves by \$160 million in the third quarter. **Bank of America**'s at-risk loans increased 15 percent from a year ago as a result of the deteriorating finances of some of its oil and gas borrowers. Still, the oil bust has left banks relatively unscathed. Asked why lenders weren't seeing more losses from energy defaults, BofA Chief Executive Officer Brian Moynihan said in a conference call, "A lot of that risk is distributed out to investors."

Citigroup, Bank of America, and JPMorgan were among the banks that courted fast-growing shale drillers in the hopes that an initial loan would lead to investment banking business. Citigroup's energy portfolio, including loans and unfunded commitments, swelled to \$59.7 billion as of June 30, Bank of America's to \$47.3 billion, and IPMorgan's to \$43.6 billion, according to company filings. "They loan money at cheap rates, and the banks get the fees from the bond and share sales," says Jason Wangler, an analyst with Wunderlich Securities. "When things are going well, it's mutually beneficial. Now it's a different conversation."

When crude prices plummeted in the early 1980s, hundreds of banks failed across oil-rich states such as Louisiana, Oklahoma, and Texas. This time around, banks were keen to limit their exposure to a boomand-bust industry. Every year since 2009, about half the debt and

equity sold by North American exploration and production companies was intended, at least in part, to restructure debt or repay loans, data compiled by Bloomberg show. Often the banks selling the securities were the ones getting repaid. "The bankers have gone through this before," says Oscar Gruss's Meyer. "They know how it works out in the end, and it's not pretty. Most of the lenders have been more on top of things this time. They are not going to get caught short in the ways they got caught short before." —Asjylyn Loder, Bradley Olson, and Hugh Son

The bottom line Oil companies have sold \$61.5 billion in stocks and bonds since January as oil prices have tumbled.

Deals

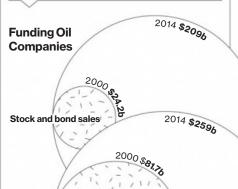
Dell Revives a Relic in Its Purchase of EMC

- ► The PC maker plans a tracking stock for EMC's VMware stake
- "They're kind of a 'trust me' security"

The \$67 billion that **Dell** is paying to buy **EMC** includes cash plus a type of security that many on Wall Street consider an artifact of the technology bubble: tracking stock.

EMC, known for its data storage technology, bought software maker **VMware** in 2004 for \$635 million, then sold almost 20 percent of the company to the public in 2007. Since then, VMware stock has soared, and the company's market value grew to \$34 billion as of Oct. 12—giving EMC one of the best investment returns in tech history. Now, for each share of EMC stock, Dell will pay \$24.05 in cash and \$9.10 in the form of a new stock designed to reflect Dell's newly acquired stake in VMware, which will remain a separate, publicly traded company.

Creating the tracking stock and including it in the purchase price makes the acquisition less expensive for Dell and allows it to maintain control of VMware; it won't have to sell any of EMC's VMware shares to raise cash. For existing EMC shareholders, the benefits are less clear. The VMware tracking stock will have no voting rights—or claim on assets in the event of a bankruptcy. Tracking stocks are "a flaky security," says Joseph Cornell,



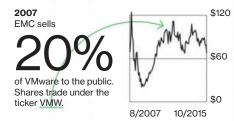
Loan originations

How Dell is hanging on to EMC's VMware shares

2004

EMC buys VMware for

\$635m



2015Dell agrees to buy EMC for

\$67b \$33.15

Rather than paying the full amount in cash, using a combination of cash and its own stock, or selling VMware shares to help finance the deal, Dell will purchase each EMC share for







In the form of a tracking stock to reflect the value of EMC's 80 percent stake in VMware

Cold. hard cash

founder of Spin-Off Advisors. "They don't have the same characteristics of a real spinoff—it's a way to highlight the assets without giving up control. They're kind of a 'trust me' security."

Tracking stocks have been around since 1984, when **General Motors** introduced a class of shares linked to the computer-services unit it owned at the time, Electronic Data Systems. A second class, for its Hughes Electronics satellite unit, came out the following year. General Motors retired the Electronic Data share class in June 1996 and spun off and sold its stake in Hughes in 2003.

Much of the negative sentiment that grew up around tracking stocks over the past decade stems from their proliferation during the Internet bubble, when companies were eager to highlight anything with a dot-com handle. From 1996 through 2003, as many as 39 trackers were minted—though many disappeared in the dot-com crash and only 10 remained in 2004, according to a research note at the time from Lehman Brothers. Among tracking stocks that famously fizzled were Walt Disney's Go.com and Alcatel's Alcatel Optronics.

One corporate mogul who never gave up on the concept is John Malone, the billionaire founder of Tele-Communications, who is now chairman of Liberty Media. Malone split his Liberty Interactive into two tracking stocks in 2012, one that tracks the unit's interests in home shopping services OVC and HSN and another that included its interests in Expedia, Time Warner Cable, and AOL. Investors see Malone's use of trackers as a success, says Iason Benowitz, a senior portfolio manager at Roosevelt Investment Group. "People view the management as quite savvy," he says. "They've been able to exchange these different tracking things to realize value over time, and they do it in a tax-efficient way."

Michael Dell and EMC Chief Executive Officer Joseph Tucci said on CNBC on Oct. 12 that they expect the price of the tracking stock to hew closely to the public version of VMware, though the companies have said little about how the shares will be designed. "We think that the tracking stock will trade at a 5 to 10 percent discount because it doesn't have any voting rights," says Derrick Wood, an analyst at Susquehanna International Group. Benowitz is more upbeat, partly because VMware has a track record as a public company. "Typically there is much less historical transparency into the operations of a business unit that has a tracking stock," he says. "That's another reason why the tracking stock discount could be narrower in this case."

VMware stock dropped 8.1 percent on news of the Dell-EMC deal, a swoon analysts ascribed to concerns about millions of new shares coming to the market. While VMware's business outlook is positive, "we think the introduction of tracking stock combined with Dell's purchase of EMC will be a negative for the stock," Mizuho

Securities analyst Abhey Lamba wrote in a research note. Given the uncertainty over VMware's stock performance, he said, for EMC shareholders, "an all cash deal would be more attractive." —Oliver Renick, Lu Wang, and Dani Burger

The bottom line A tracking stock will represent \$9.10 of Dell's \$33.15-a-share purchase of data storage company EMC.

Banking

Finding a Place for Cannabis Cash

- ► Anthony Rivera wants Indian tribes to serve the \$3 billion trade
- "The Indian casinos are basically small little banks"

Shaun Gindi brought a duffel bag stuffed with a thousand \$20 bills to open a checking account at his local Chase branch. The bank closed his account after a week. As the owner of two marijuana shops and a weed warehouse in Colorado, where the drug is legal, Gindi is a pariah to banks, which face expensive compliance hurdles and uncertain legal consequences because the marijuana business still violates federal law. Of the more than 7,600 banks and credit unions in the U.S., only about 220 accept cannabis cash, according to the Department of the Treasury. "I've gone through at least eight banks," Gindi says.

Anthony Rivera Jr., a Harvard Business School graduate who led the 1,940 members of the Acjachemen Nation in Southern California for almost a decade, says he has a solution: an American Indian banking system. His organization, CannaNative, is trying

to link tribal leaders from the 566 sovereign Indian nations, which aren't subject to U.S. banking laws, with finance professionals and legal marijuana businesses. The goal is to use the expertise gained from decades of managing casinos to create banks or credit unions to tap a market the big



BID/ASK ILLUSTRATIONS BY OSCAR BOLTON GREEN

Bid/Ask

By Kyle Stock



\$104b

Big Beer gets bigger. Anheuser-Busch InBev, the world's largest brewer, finally won over SABMiller, its chief rival, with a sweetened takeover bid. Although SABMiller's two biggest shareholders supported earlier offers, the board held out for weeks in hopes of a higher price. Together, the companies make about a third of the world's beer; Heineken, with a <u>9 percent market share</u>, is the closest competitor.

\$326

General Electric flips its finance business. Wells Fargo snapped up the bulk of GE's U.S. commercial lending and leasing business, which has \$32 billion in assets and 3,000 workers.

\$16b

Vonovia bids for Deutsche Wohnen. The offer by Germany's top residential real estate player is meant to disrupt developer Wohnen's purchase of apartment owner LEG Immobilien.

\$1.5b

Jarden goes back to school. The company behind Crock-Pots and Coleman camping gear buys Jostens, a maker of class rings and yearbooks.

\$907m

England sells Royal Mail. The British government sold a 13 percent stake in the publicly traded postal service and donated its remaining 1 percent to Royal Mail employees.

\$552m

Treasury Wine Estates picks Diageo vineyards. The Australian vintner is buying the North American and British wine operations from the spirits giant, which says wine is no longer a core asset.

\$513m

Svenska Cellulosa buys Wausau Paper. The Sweden-based timber giant is soaking up a towel and tissue maker with 900 workers in Kentucky, Ohio, and Wisconsin.

Smashburger sells a big bite. Jollibee Foods, the largest restaurant company in the Philippines, gobbled up 40 percent of the fast-growing burger chain.

■ banks won't touch—the legal pot industry's estimated \$3 billion in annual revenue. "The Indian casinos are basically small little banks," Rivera says. "They receive deposits in the form of gaming, and they manage that cash in a way which is highly regulated."

Rivera's partners at CannaNative, Andy Nakai and Cedric Black Eagle,

have held leadership positions in the Navajo and Crow nations. Nakai is the vice chairman for the board of directors of the Navajo Community Development Financial Institution, and Black Eagle served as chairman of the Crow Nation Executive Branch. "Having CannaNative to be the voice, I think the native people will listen to them," says Larry Banegas, a member of the Barona Band of the

Kumeyaay Nation, the largest tribe in

Southern California.

CannaNative is emulating the casino model of the 1980s by hiring managers from cannabis companies, such as **Medical Marijuana**, to teach tribes how to set up financial institutions for the budding industry. "When Indian gaming became legalized, tribes didn't know how to run casinos, so many companies that knew how to run gaming operations became managers of the tribal enterprise until the tribe figured it out," Rivera says. "Then the tribe took it over."

Since 2012, Alaska, Colorado,
Oregon, Washington, and the District
of Columbia have legalized cannabis
for adult recreational use, and 23 states
have approved medical marijuana,
according to the National Conference
of State Legislatures. In October 2014
the Department of Justice said tribes
could legalize marijuana for medicinal,
agricultural, and recreational use the
same way individual states do.

As long as federal law bans marijuana, conventional banks will be wary. So for now, Gindi's job will continue to involve duffel bags bulging with cash. "I don't want people out there to know that there is ever a large amount of cash in somebody's car," he says. "We all just want to follow the rules." —Jennifer Kaplan

The bottom line Only about 220 of America's 7,600 banks and credit unions will do business with legal marijuana companies.

Edited by Eric Gelman and Matthew Philips Bloomberg.com



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BUYING TIME

In the business world, every minute saved could be money earned. That's why more and more corporate travelers are opting to fly private to boost efficiency

The unpredictability of flying commercial airlines can have a considerable negative impact on productivity—one of the many reasons that business executives are turning to the flexibility, convenience and comfort of private aviation for their corporate travel.

The numbers bear out this trend. In 2014, according to the year-end shipping and billings numbers from the General Aviation Manufacturers Association (GAMA), worldwide general aviation airplane shipments rose 4.3 percent overall—and business jet shipments increased by 6.5 percent—from the previous year.

Likewise, accessing private flights has never been easier, partly due to the recent rise of membership-based private aviation companies. At New York-based Wheels Up and California-based Surf Air, a signup fee and monthly dues buy business travelers access to a fleet of private jets. Investors are noticing, with Wheels Up, which offers a specialized corporate membership, recently receiving a \$115 million capital injection.

Why are more companies utilizing private jets? The National Business Aviation Association (NBAA) reports that private aircraft access 10 times the number of U.S. airports compared to commercial airlines. This ability to utilize smaller, less-congested airfields closer to a destination point saves time, and fosters business in parts of the world that are otherwise inaccessible. It also creates the possibility of flying nonstop between smaller airfields, avoiding the added time and hassle of rushing to make connecting commercial flights.

Having almost complete scheduling flexibility is also a huge advantage, particularly in the event that travel plans change. According to NBAA, nearly 25 percent of all commercial airline flights are delayed, and another 3 percent are canceled. These types of issues rarely arise when flying private, however.

Despite the increased comfort and privacy that business jets offer, they are far from a mere luxury. In fact, studies have shown that private aviation is also favorable to the bottom line. The NBAA reports that companies that use private aviation return more to shareholders than those in the same industry who do not utilize business jets for their travel needs.

Private aviation boasts undeniable corporate benefits, and it is becoming an increasingly viable and accessible option as new offerings continue to appear. In short, it's the smart choice for the savvy business traveler.



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Lufthansa

TWO NEW LOOKS FOR PRIVATE AVIATION

More than just an efficient way to get from Point A to Point B, private aviation is also the key to unlocking a company's global potential. Increasingly, executives spend their professional lives traversing the world, placing an ever-greater emphasis on being able to handle that transition seamlessly without a disruption in productivity.

As the world's only manufacturer of planes and trains, Bombardier is cognizant of the vital role that private aircraft play in today's corporate world. For that reason, the Montreal-based multinational is continually expanding and innovating to provide specialized and cutting-edge options to the consumer. Two new additions to Bombardier's diverse portfolio-the Challenger 650 and the

Global 7000—reflect the company's commitment to shaping the future of mobility.

"One unique feature of the Challenger 650 aircraft is its 12-passenger capacity seating," says David Coleal, President, Bombardier Business Aircraft. "The size of a business jet cabin contributes greatly to passenger comfort, and Bombardier is the only original equipment manufacturer to offer this configuration, which is the widest cabin in its class."

Inspired by the interior design of the Challenger 350, the Challenger 650 aircraft offers a beautiful aesthetic featuring fluid lines and the height of interior comfort, highlighted by a new seat design with integrated deployable headrests and ergonomic leg-rests. To promote productivity, the jet also boasts deployed tables that line up perfectly with an angled side-ledge

to increase useable work surface area, as well as industry-leading wired and wireless connectivity as standard.

Listening to customer feedback was vital to the design process. "Our team put a lot of thought into redesigning the Challenger 650 business jet, paying special attention to design elements that provide our customers with maximum cabin space, extra-large, comfortable seating and ample leg room," Coleal explains.

In addition to redefining the ultimate in-flight experience, the midsize jet offers lowest-in-class operating costs, making it an attractive option for a multitude of purposes. The Challenger 650 aircraft has optimal performance capabilities, featuring the Bombardier Vision flight deck and optimized engines with higher thrust that deliver shorter take-off field length and extra payload. The end result is an aircraft that Coleal describes as having "the right range, the right size and the right seating configuration to make it an excellent business jet for a wide variety of customers."

Not to be outdone, the Global 7000 is also setting the benchmark among large aircraft. "The Global 7000 business jet is the first and only purpose-built four-zone aircraft, and it will deliver unmatched performance, flexibility and comfort," Coleal says. "It's a stunning example of what Bombardier Business Aircraft can do."

The Global 7000 aircraft is beautifully appointed with large, newly-designed windows that afford passengers breathtaking views from anywhere within the cabin. Thanks to its high-efficiency engines, it has the range to reach nonstop city pairings such as New York to Dubai and Beijing to Washington, D.C., and it can do so at high speed with low fuel burn and low emissions.

"The Global 7000 is unrivaled by any other business jet," says Coleal. "We've received tremendous response from our discerning customers who appreciate the attention given to details and the unique features that make this an incomparable aircraft."

history, Bombardier is ideally positioned to keep pushing the boundaries of the private aviation industry. In that sense, the category-defining Challenger 650 and Global 7000 aircraft are a continuation of Bombardier's efforts to make mobility more

Drawing on its more than 70 years of efficient, sustainable and inviting.

Bombardier's Global 7000 business jet features





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DECLINED

HOW BAD WILL IT GET FOR AMERICAN EXPRESS?

BY DEVIN LEONARD &
ELIZABETH DEXHEIMER
PHOTOGRAPHS BY
SARAH ANNE WARD



very year, they got together. Sometimes
Costco's top executives would fly to New York
to meet with Kenneth Chenault, the chairman and chief executive officer of American
Express, and his team. From the card company's perch on the 50th floor of its tower in lower
Manhattan, the Costco guys peered at the views
of Wall Street and the Statue of Liberty. They
were used to looking over a less inspiring sea of parking lots from
the windows of Costco's three-story headquarters in suburban
Issaquah, Wash., decorated with Van Gogh reproductions purchased from Art.com.

When Chenault made the reverse trip to Issaquah, the Costco guys were tickled by how meticulously Amex choreographed his movements. "Ken Chenault would have an advance team come to our office before he visited," says Paul Latham, Costco's vice president for membership and marketing. "They planned everything—where he would enter the building, the route to the boardroom, where he'd sit at the table." After breakfast, Chenault would often give an elaborate presentation about the performance of Amex's Costco affinity card, using PowerPoint decks that looked like they took weeks, maybe months, to prepare. Costco just jotted down some notes for their CEO, Craig Jelinek, to talk about.

The Amex people, most of whom had MBAs, sometimes found it amusing to deal with Costco veterans who spoke about starting out stocking warehouse shelves. Less endearing was the habit Costco executives had of referring to Amex as a "vendor." That made the Amex people seethe. After all, they represented one of America's oldest corporations. But they smiled and said nothing, and the corporate marriage endured for 16 years.

Costco had a similar co-branded affinity card with Amex in Canada. As its contract neared expiration in 2014, Costco solicited bids from other financial institutions to see if it could get a better deal. It did, and chose Capital One and MasterCard. Chenault went all out to hold on to the discounter in the U.S. Costco's costs to accept credit cards as part of its deal with Amex was about 0.6 percent of every purchase, people familiar with the arrangements say, which was pretty cheap for any retailer, but Chenault offered to cut them further. Still, Jelinek insisted on putting the U.S. business up for grabs, too.

Amex wasn't happy about competing with global banks such as Citigroup and JPMorgan Chase and its archrivals Visa and MasterCard. But Chenault fought for the deal–even though his company might actually lose money in some cases when Costco customers swiped the card. As the negotiations dragged into January 2015, however, he became agitated and called his counterpart to remind him that Amex hadn't only furnished Costco with its prestigious card; it had been Costco's "trusted partner." Jelinek interrupted, according to people who were briefed by Chenault about the call, and told him that as far as he was concerned, Amex was another vendor, just like the one that sold Costco ketchup. "If I can get cheaper ketchup somewhere else, I will," he said. As rumors about the call spread, the rank and file who heard about it couldn't believe someone from Costco had the nerve to insult Amex like that. Ketchup! Chenault called Jelinek a few weeks later to say Amex was pulling out.

Latham says Jelinek doesn't remember making the ketchup comment, and that it was the Costco CEO who telephoned Chenault to break up. He says Citigroup and Visa offered better terms, and people familiar with the deal say Costco's credit card costs would be virtually nothing. Costco also wanted its customers to have a Visa card that they could use in many more places than an Amex card. "The fact that Visa is the largest payments network, that acceptance for Visa cards is greater than

any other cards in the U.S., that was certainly a factor," Latham says.

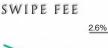
On Feb. 12, Chenault broke the news to investors. The Canadian deal had prepared the market for such a possibility, but Chenault disclosed something stunning: 10 percent of the 112 million Amex cards were Costco-branded. Amex shares tumbled 6 percent that day. The magnitude of its Costco business amazed Moshe Orenbuch, an analyst at Credit Suisse who did some math and determined that Amex co-branded cards. which also included Delta, JetBlue, and Starwood Hotels, accounted for 23 percent of \$1 trillion in overall card spending last year. "Amex maintains that it has the best brand," Orenbuch says. "Yet they decided not to tell us that 23 percent of their business was actually co-branded, which means it's using someone else's brand. I find those two things somewhat inconsistent."

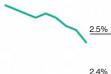
In conference calls with investors, Chenault has said Amex ended the Costco deal for purely economic reasons. "The numbers didn't add up," he said in March. "We couldn't accept their financial terms nor their contractual terms, some of which would have meant taking on more risk than we were comfortable with." But the decision was also partially emotional, and it couldn't have come at a worse time for Amex. Soon after the breakup with Costco, Bloomberg reports, JetBlue ditched Amex for Barclays and MasterCard. Fidelity may also be thinking about canceling its affinity card, which is furnished jointly by Amex and Bank of America, and possibly joining forces with Visa or MasterCard.

As the card deals unraveled, a federal judge ruled against Amex in a lawsuit filed by the U.S. Department of Justice arguing that merchants have the right to discourage customers from using Amex cards because its high fees unfairly drive up the price of goods. (Amex is appealing the decision.) Chenault, who's been CEO since January 2001, when Bill Clinton was president, declined to be interviewed for this story. He's assured investors that Amex would absorb the losses not just because it was a strong company but also because of its aura. "Our brand is globally recognized," he said in March. He has a point: Amex is a rarefied company. Its cardholders are more affluent than users of Visa or MasterCard. In 2014, Amex

CRACKING PLASTIC

American Express is facing pressure on many fronts





STOCK PRICE

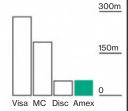
2014

\$100

2006



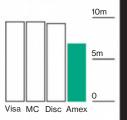
NUMBER OF U.S. CARDS



TOTAL U.S. PURCHASES



U.S. ACCEPTANCE LOCATIONS



DATA: NILSON REPORT, BLOOMBERG

members spent an average \$144 per purchase, compared with \$84 for Visa users and \$90 for MasterCard holders, according to the *Nilson Report*, a publication that tracks the card industry. Because it delivers higher-spending customers, Amex charges merchants an average swipe fee of 2.5 percent per transaction.

Visa and MasterCard settle for 2 percent for their credit cards.

Amex also heavily advertises to convince the public that its cardholders are superior to those who dare use other kinds of plastic, sponsoring Taylor Swift music video apps and drafting Tina Fey to portray an adorably frazzled, Liz Lemon-like shopper in ads for its new Amex EveryDay credit card.

This formula has made the company tremendously profitable. Its return on equity, a measure of a bank's profitability, was 28 percent in the second quarter, higher than that of all its card-issuing rivals. In May, Warren Buffett, CEO of Berkshire Hathaway, the credit card company's largest shareholder, reiterated his support for Chenault. "Amex is still a very, very special company," he said, adding, "Ken has done a sensational job."

But Amex is in a situation that's becoming increasingly familiar to companies with formerly impervious brands, such as Procter & Gamble, Coca-Cola, and McDonald's. For decades, they would charge extra for their products. Today their toothpaste, sodas, and burgers no longer have the same cachet. Worse for American Express and other credit card companies, technology is making the physical manifestation of their brand invisible. Who cares what card you have if you're paying for your expensive meal through your smartphone's digital wallet?

As Amex shares slumped, ValueAct Capital, a San Francisco activist hedge fund, disclosed in August that it had almost \$1 billion of Amex stock. Jeffrey Ubben, the fund's chief executive, has yet to disclose his plans. But he has a history of investing in companies and shaking things up, which has been followed by the departures of CEOs, most notably Microsoft's Steve Ballmer. For Chenault, this may be a moment to reflect on whether he can be most helpful to Amex's other shareholders by sticking around and fighting, or by making a graceful exit.

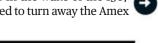
Chenault frequently evokes his 165-year-old company's

legacy. Three years ago, he appeared onstage at the American Museum of Natural History for what was billed as a "fireside chat" with Facebook Chief Operating Officer Sheryl Sandberg. It was a tech event, so Chenault didn't wear his usual suit and tie. Instead, he showed up in a brown zipper-neck sweater and an open-collar shirt. Yet his dark slacks were creased, and his shoes gleamed as if they'd just been polished. "How do you innovate?" Sandberg asked him.

Smiling, Chenault replied that Amex knew a bit about the subject. "We didn't start off in a dorm room or a garage," he said. "Probably in a stable." Founded in 1850, Amex transported packages from the East to the West Coast by stagecoach. It was a nice business until President William Howard Taft signed a bill in 1912 allowing the U.S. Post Office to carry packages at lower rates. Luckily, Amex had developed a product called the Traveler's Cheque, which people could purchase in the U.S. and cash in Europe. Amex transformed itself into a global travel agency, planning footloose Americans' trips, finding them English-speaking doctors in Europe and bottled water in Africa, and, for the right price, according to a 1956 *Time* cover story, organizing tours of Pygmy villages in Africa—anything to sell more Traveler's Cheques.

In 1950, Diners Club introduced the first multipurpose charge card. Some at Amex thought their company should respond with its own card; others feared this would cannibalize the traveler's check. After much hand-wringing, Ralph Reed, who ran Amex at the time, approved the first Amex card, which appeared in 1958. Five years later, there were a million cards "in force," as the company likes to say.

Amex has faced trouble before. In the wake of the 1987 stock market crash, merchants started to turn away the Amex





card because of its hefty swipe fees, which at the time were as high as 3.5 percent. In 1991, a group of 100 restaurateurs in Boston staged what became known as the Boston Fee Party. "There was a big recession going on," says Steve DiFillippo, owner of Davio's, a popular Italian restaurant in the city and one of the Fee Partiers. "The garbage guys and the meat guys were helping us out, but American Express wasn't doing anything for us." Visa did its best to make the situation worse with an ad campaign featuring celebrity chefs such as Wolfgang Puck and other merchants who didn't take American Express.

Chenault led the effort to fix the problem. A native of Hempstead, N.Y., he was a graduate of Bowdoin College in Maine and Harvard Law School. In a *Businessweek* profile published three years before he became CEO, his college roommates and Amex colleagues described him as someone who was determined to rise to the top while maintaining tight control over his personal brand, never losing his temper or even raising his voice. He started at Amex in 1981 in the strategic planning division and applied his skills to a moribund operation that peddled jewelry and stereo equipment through the mail to cardholders. Chenault impressed his bosses by boosting sales from \$150 million to \$500 million and ended up in charge of travel-related services, which included the card division. He thought Amex should lower its fees for smaller merchants like DiFillippo to keep them in the fold. At the same time, he held the line with airlines that relied on Amex's bigspending cardholders. "Ken was spectacular," says Tom Ryder, a former Amex executive. "He was the leader of the turnaround effort. He's not CEO for no reason."

To the horror of elitists within Amex, Chenault pushed for blue-collar establishments such as Wal-Mart Stores to accept the card. But the most important deal was the one that the company struck in 1999 with Costco. At the time, Costco operated only 221 warehouses in the U.S. Its customers, however, who had to pay \$40 a year to get in the door, tended to be affluent. "We tried to convince them that they should accept Amex," recalls David House, a former executive at the credit card company who worked on the deal. "They kept saying, 'It will never work. It's too expensive." After much negotiating, Amex persuaded Costco to end its exclusive deal with Discover Financial Services and let Amex issue a Costco-branded credit card that would be the only one accepted at its warehouses. According to House, Amex didn't have to lower its swipe fee to get the transaction done. Instead, he says, it agreed to pay Costco a bounty for every new cardholder it brought in.

At the contract signing in 1999 at Costco's headquarters, Jim Sinegal, then the company's CEO, seemed thrilled to be going into business with Amex. "This is a contract for life," House recalls him saying.

The arrangement turned out to be hugely beneficial to Amex. By 2004, the number of Costco warehouses in the U.S. had risen nearly 50 percent since the alliance, to 327. Meanwhile, the total number of Amex cards rose from 46 million to 65 million. "Costco would have been a big contributor to that growth," says Jason Arnold, a research analyst at RBC Capital Markets. Chenault, who'd become CEO three years earlier, ingratiated himself with Sinegal. Although they personified two different corporate cultures, by all accounts, the two men got along well, even when their relationship was tested by the financial crisis of 2008. Plagued by souring credit card loans, Amex won approval from the Federal Reserve to become a commercial bank, which enabled it to get \$3.4 billion in funding from the Troubled Asset Relief Program. Amex also canceled cards, including some belonging to Costco members, which upset the retailer. "At that time, there was tension between the companies," says Robert

DO YOU KNOW ME?

Chenault with some of the cardmembers he's cultivated to keep the brand prestigious amid its mass-market misadventures

1997 With former Amex CEO Harvey Golub and Tiger

Woods



2003 With director Martin Scorsese



2007 With music producer Pharrell Williams



2012 With Facebook Chief Operating Sheryl Sandberg



Ritchie, a former Amex manager who worked on the Costco account. "We had to mend the relationship." The discussions were delicate; a discount chain where people bought 80 rolls of toilet paper was now able to push around the century-anda-half-old company with the centurion logo.

Amex emerged from the crisis in a stronger position than its card-issuing rivals, which relied less on swipe fees and more on revolving credit. In Washington, there was talk that President Obama wanted Chenault in his cabinet, possibly as secretary of the Treasury, in his second term. That didn't happen, but Chenault sounded increasingly like a politician. He became interested in marketing cards and services to people on the opposite end of the spectrum from Amex's Platinum Card holders. In 2010, Amex paid about for people without traditional bank accounts, and rebranded it Serve, which sounded more like a cause than a business.

In 2012, Amex launched BlueBird, a prepaid charge card with Wal-Mart that it promoted as a low-cost alternative to debit and checking accounts. In investor calls this year, Chenault has said those products are growing fast, but Amex has yet to release revenue figures for them, which suggests they're underwhelming. "I would estimate that they make up 2 percent of the company's card spending," says David Robertson, publisher of the *Nilson Report*. "They aren't moving the needle yet."

Meanwhile, Amex's high-end customers were seeing the value of their cards dwindle. It used to be that flashing the Amex Platinum Card with its \$450 fee would get you into most airport lounges. But as airlines merged, most recently American Airlines and US Airways in 2013, Amex cardholders lost access to many of these oases because of long-standing relationships their proprietors had with rivals. Amex reacted by creating its own airport havens, called the Centurion Lounge; there were 14 as of last year. Customers like them, but Amex has had to rent expensive space in airports and provide its members with gourmet meals, massages, and whatever else it might take to keep them from cutting their cards in half. "American Express's response has been brilliant" in the short term, says Henry Harteveldt, a travel industry analyst and founder of Atmosphere Research Group. "But does Amex want to operate a network of lounges? No."

JPMorgan and Barclays have poached Amex's high-spending customers with generous card offers and lower annual fees. Two years ago, Chase cards surpassed Amex in American households making at least \$125,000 a year, according to Phoenix Marketing International, a wealth research firm. In July 2014, Chenault spent two days testifying in the Justice lawsuit, arguing that his competitors had stolen his company's methods and threatened its existence. "They've got a billion cards," he lamented. "I got fewer than 55 million. They got 9 million merchants. I got around 6. I mean, I am dwarfed. We are swimming in a sea of bank cards."

Even in this moment of public self-pity, the 64-year-old CEO showed off his Amex invitation-only Centurion Card, better known as the Black Card, to white-haired U.S. District Court Judge Nicholas Garaufis, who was born in 1948. "I've never actually seen one of those," Garaufis confessed.

"Your honor, if you would permit me," Chenault said, producing his own. "This is a Black Card. It's made out of titanium. And what it has is a set of very specialized services, so concierge type of services. So you can almost think of it as your personal aide."

"I see," Garaufis said. "I'm going to need a personal aide at some point."

"Well, after the trial and everything's done," Chenault said. "I don't want to know," Garaufis said.

"Part of my job is to persuade," Chenault said. Never mind that even the Black Card no longer has the same mystique with the young moneyed set that Amex desperately needs to attract. In 2004, Kanye West boasted about his, memorably referring to it in a song as the "African American Express card." But last year, Young Thug, the rap icon and influencer of the moment, rhymed in the hedonistic hit *Lifestyle* about having a \$1.5 million spending limit on his Visa card.

In February, Garaufis ruled against Amex, opening the door for merchants to steer customers away from its cards. Amex called his decision "flawed" and promised to appeal. But credit card experts don't expect Amex to prevail. "Swipe fees as we know them today will be cut in half over the next decade," says Steve Mott, CEO of BetterBuyDesign, a payments consulting

firm. In late September, shares of Amex had fallen 22 percent for the year, making it one of the worst performers in the Dow Jones industrial average. The company's declining value has inspired some investors to revolt. In July, a group of shareholders sued Amex for not disclosing the size of the Costco portfolio sooner. Amex declined to comment.

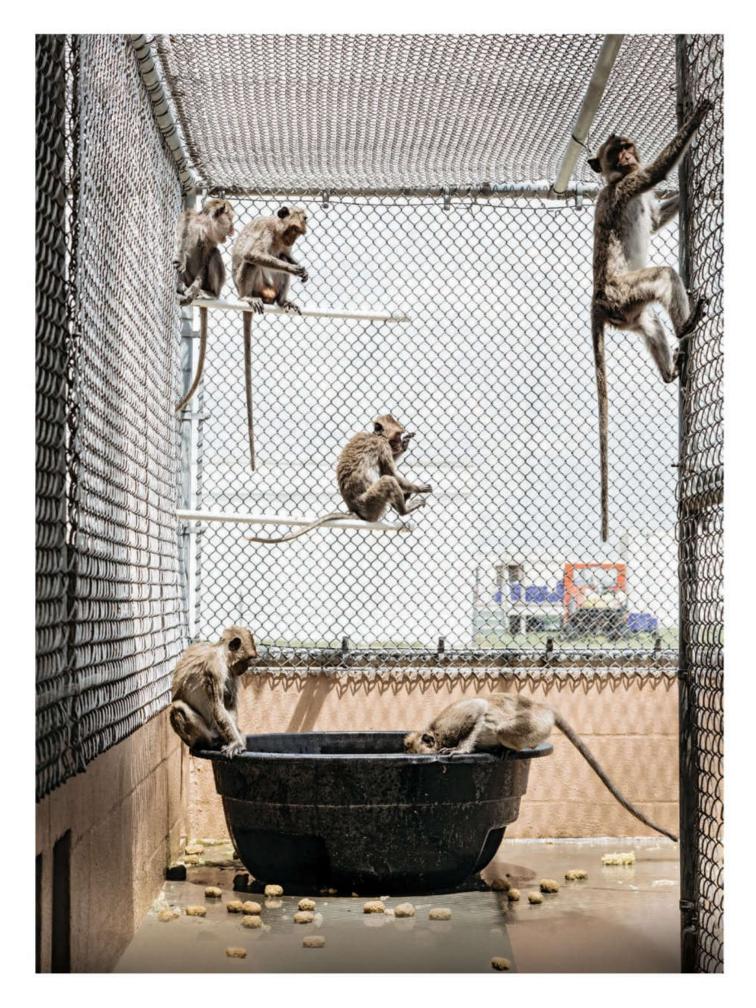
The company's woes by then had attracted the activist hedge fund ValueAct, whose purchase of a 1.1 percent stake in Amex made it the 12th-largest shareholder. Ubben, the fund's preppylooking founder, typically favors companies he thinks are temporarily underpriced. He hasn't decided yet whether he'll wage a campaign to transform Amex or simply sell the fund's position, people familiar with his thinking have said. Ubben's options are limited. Activists often turn a profit by pressuring companies to increase their dividend or the amount of stock they repurchase. But ValueAct can't use those tactics on Amex because, as one of the largest U.S. banks, it's subject to regulations that restrict how much extra cash can go to investors. The Federal Reserve must also sign off on its dividend as part of an annual stress test process. ValueAct declined to comment.

ValueAct could try to revive Amex's stock by precipitating a management change. If the fund's managers, who have met with Chenault since the stock purchase, decide to take that route, they might pursue a behind-the-scenes strategy similar to the one that worked at Microsoft. ValueAct announced in 2013 that it had bought almost \$2 billion of the tech company's shares and demanded a board seat. Shortly before Microsoft acquiesced, Ballmer resigned as CEO and later stepped down from the board, saying he wanted to devote more time to the Los Angeles Clippers, the basketball team he owns. Since ValueAct unveiled its stake, Microsoft's shares have risen 52 percent. Some investors would applaud if Ubben took a similar approach at Amex. "I think you have a CEO who has overstayed his welcome," says Credit Suisse's Orenbuch. The challenge may be picking Chenault's replacement. Ed Gilligan, the Amex president widely seen as his successor, died after becoming ill in May while returning from a business trip in Tokyo.

American Express has a mandatory retirement age of 72 for directors, which means the board needs to plan for secession, but Chenault doesn't sound like he's leaving anytime soon. In conference calls since the Costco loss, he's said that Amex has new products and card deals in the works that will enable it to recover. He's also planning for what happens when the Costco deal expires in March and the cards no longer work in the stores. As part of Costco's new agreement, Amex must sell the loan portfolio to Citigroup, a deal that the two banks are still negotiating. Chenault says the company will do whatever it can to get Costco cardholders to switch to regular Amex cards. But that will be difficult. Chenault frequently boasts about his company's powerful brand, but Costco's may be more alluring.

That was evident late one afternoon in September at the Costco in Wheaton, Md. Beverly Patterson exited with four frozen pizzas, her favorite brand of chicken with Japanese-style fried rice, and the store's wheat bread, which she adores, in her cart. A school librarian who lives in nearby Silver Spring, Patterson said she loves her Amex card, too, but perhaps not enough to keep it once it's no longer good at Costco. "My choices are particular," she said. "Costco has what I like."

The doors slid open again, and Jane Lee, from Bethesda, emerged. Lee had just been approved for a Costco Amex card, and she was proud of it. "You have to have perfect credit," she said. But now that Costco was going to go with Visa, she'd have to go through the whole process again. It's irritating, but what could Lee do? "I love Costco!" she said. **3**





By Felix Gillette Photographs by Jason Henry

The breeders are proud.

The activists are mad.

The neighbors are confused.

And the monkeys still have good aim

usan Campbell first heard about the monkey farm from her neighbor William Stephens. It was the summer of 2013, and Stephens explained to her the troubling news. Someone had purchased a plot of land in their

rural neighborhood in south-central Florida and was about to begin construction on a farm to breed, of all things, monkeys.

The details were hazy. But as her neighbor rattled off what he knew-the county had already approved a plan to have up to 3,000 or so monkeys live on the premises-Campbell listened anxiously. She recognized the site he was describing, a patch of land by Bedman Creek, where the main road hits a dead end, roughly a mile from her home. How much noise could 3,000 monkeys make, she wondered. Her two wolfdogs, Diablo and Apache, were going to "flip out," she later recalled thinking.

Campbell, 62, and her husband live on the outskirts of LaBelle, a small town on the banks of the Caloosahatchee River. It's the seat of Hendry County, a muggy, agricultural region just north of the Everglades, about an hour's drive inland from Fort Myers. The area's low-lying fields are crisscrossed by drainage canals and studded with citrus groves, hog farms, pepper plantings, llama ranches, watermelon patches, cattle pastures—and in recent years, as Campbell learned, monkey farms. There were already two such businesses operating in the county, importing and breeding monkeys for sale to biomedical research institutions. A third breeder would soon open outside the town of Immokalee. The proposed farm near her home would make four. That July, Campbell, who's in the technical support team for the South Florida Water Management District, e-mailed the county's commissioners, demanding more information. "Seems like a pretty well-kept secret," she wrote. Nobody responded.

Before long, however, Campbell and her neighbors found a powerful ally in their quest to keep their neighborhood monkey-free. For decades, animal welfare activists had been fighting a public-relations battle against companies that supply the scientific community with monkeys, arguing it is unnecessary and unethical to use monkeys for testing. Recently, they had scored some victories, managing to get several major airlines, including American Airlines, United, and Delta, to commit publicly to stop transporting research monkeys into the U.S. Now, they've shifted their focus to Hendry County.

In the months that followed, a coalition of mainstream and radical animal rights groups took up the cause. Activists wearing T-shirts that read "Stop Hendry County Monkey Business!" disrupted a local economic development hearing. They claimed the county was turning into the monkey-cruelty capital of the U.S. They warned that monkeys might overrun the Everglades, already under siege from invasive pythons. Robbyne Kaamil, a New York-based actor, wrote a song and shot a music video about the plight of the Hendry County macaques. "Florida rise up," she sang. "Don't let them turn paradise into hell on earth for primates and all of us....Free the monkeys. Let them all go. Free the monkeys. Let them go home."

In November 2014, the Animal Legal Defense Fund, a group based in California, filed suit in state court against Hendry County on behalf of Campbell's neighbors. The lawsuit alleged that officials had approved the new monkey farm in violation of certain zoning restrictions and without a public hearing as required by Florida law. County officials replied that they had done nothing wrong and asked the judge to dismiss the case. This March the judge made an initial ruling, allowing the suit to proceed to discovery.

Each year, roughly 20,000 or so monkeys are flown from trop-

farms. Despite the relatively small number, the monkeys play a huge role in basic scientific and medical research, says Matthew Bailey, the executive vice president of the National Association for Biomedical Research. Before a new drug or vaccine can go on the market, the U.S. Food and Drug Administration requires safety testing using animals. The use of monkeys has been essential, says Bailey, in developing cures for everything from typhus to polio and is integral to the study of currently incurable diseases such as Alzheimer's and AIDS. "My suggestion is that if you agree with the animal rights narrative, open up your medicine cabinet and throw out all your pills, including your child's pain reliever," he says. "Because without animals in preclinical research and testing, we wouldn't have them." Clients of monkey farms won't describe what happens to the animals they purchase. Activists allege every dark scenario from death by Ebola virus exposure to experimental surgery.

If the new farm is built, Hendry County could house up to 10,000 monkeys, making it a hub in the nation's supply chain. But activists now see it as an increasingly weak link in an otherwise well-armored system. They're hoping to make the whole thing come to a grinding halt. As a result, what started as a small skirmish in rural Florida has now escalated into a drama with potentially negative repercussions for the nation's multibillion-dollar pharmaceutical industry. Yet many of the companies involved have chosen to remain silent. PreLabs, the private Illinois-based company that proposed the monkey farm at the center of the Hendry controversy, has said almost nothing in public about its plans or what inspired them. Similarly, the Mannheimer Foundation, which since 2005 has operated a monkey farm in the county, has remained mum. Neither responded to multiple interview requests.

Their silence has only added to the mystery that hangs over the farms' proliferation in Hendry County. By midsummer, with the activists appearing to gain momentum, Campbell couldn't help but wonder how her little neighborhood, which doesn't have so much as door-side mail delivery, emerged as the center in the global monkey trade. "What is the big draw here?" she asks. "Why did they choose this county?"

aul Houghton has the answer. Houghton, the owner and chief executive officer of Primate Products, which is based in Redwood City, Calif., was the first monkey specialist to recognize the potential of Hendry. In 1998, after many years in the monkey business, several spent overseas, he was looking to build a large, isolated farm somewhere in the U.S. Breeding monkeys alfresco, which is much cheaper than doing it indoors, requires consistently warm weather. South Texas is one possibility. South Florida is another. The Florida Keys would be ideal, but Houghton knew folks there had long ago soured on monkey breeders.

In 1973, Charles River Laboratories, a biomedical company based in Wilmington, Mass., purchased two islands in the Keys, which it stocked with more than a thousand macaques from India. The idea was to let the monkeys breed unimpeded, and the company would then occasionally harvest a portion for laboratories. According to press accounts, however, the monkeys eventually overran the islands, stripping bare the mangrove vegetation and fouling the waters. The locals were apoplectic. Litigation ensued. Finally, in the 1990s, the project was discontinued and the monkeys were removed.

Houghton looked at a map of Florida. If you follow a line north from the Keys, you hit the Everglades, then Hendry ical regions worldwide into the U.S. Many wind up at stateside County. Houghton did some research and found that the area There are about 1,200 monkeys at Panther Tracks



satisfied many of his needs: It was largely agricultural with a labor force accustomed to working with animals. It was out of sight from any potentially nervous neighbors. Yet you could still drive to the Miami International Airport to pick up a new shipment within a couple of hours.

Houghton bought a large parcel surrounded by farmland and next to the Big Cypress National Preserve. He says that from the start, everyone in the county was welcoming. "The economic development people from Hendry County overwhelmingly wanted us there," he recalls. (The Hendry County Economic Development Council didn't respond to several interview requests.)

In 2000, Houghton opened his monkey farm. He christened it the Panther Tracks Learning Center. It is at the end of a dirt road off a desolate highway stretching between Immokalee and Everglades City, past a former prison. There's an unmarked gate watched by a security camera, and beyond, on the far side of a lagoon filled with alligators, sits a cluster of buildings. Guests are asked on arrival to produce a driver's license and reassure a pair of stone-faced staffers that they're not, say, animal welfare activists working undercover.

The 640-acre site usually houses 1,000 to 1,200 monkeys, a mix of rhesus and cynomolgus macaques native to Vietnam, China, and Mauritius. The company doesn't sell monkeys to collectors or zoos. It only does business with biomedical researchers. Recent clients have included the National Institutes of Health, Duke University, and AstraZeneca. Houghton runs the business from California, leaving Thomas Rowell, a veterinarian and Primate Products' president, to show off the Florida facilities. Primate Products is a private company, and Rowell declines to share any financial information, but it's safe to say there are easier ways to make money. Macaques can be dangerous to handle. Agile animals, they have sharp claws and teeth and can carry serious communicable diseases. A full-time behaviorist at Panther Tracks has to constantly tweak the groupings of cage mates to minimize monkey-on-monkey violence.

Inside the gates at Panther Tracks, Rowell is apologetic about the security. "Look at the people who work at abortion clinics," he says. "You don't just walk in. There's pressure on everybody."

He's spent his life working with monkeys, most recently as the director of the New Iberia Research Center at the University of Louisiana at Lafayette. Three years ago, he joined Primate Products and now lives at the facility. In his off hours he likes to fish in the nearby wetlands, drifting with the tides in a kayak.

The farm gives off the inquisitive vibe of a biological field station. Young workers in medical scrubs mill about, gravitating to shady spots away from the midday sun. In the administrative buildings, monkeythemed art hangs on the walls. On one

side of the compound, there's a lecture hall with a dais outfitted with white boards and diagrams of primate anatomy. Next door is a warehouse piled high with merchandise sold by the company—transport boxes, colorful plastic chew toys, monkey hammocks, gloves, nets, and mirrors.

The monkeys live in two dozen outdoor cages, each about the size of a tennis court, that are strewn with toys and stray food pellets beneath the shade of green canvas tarps. Rowell says the group enclosures are designed to facilitate social interactions, withstand hurricanes, and minimize the risk of escapes.

The monkeys, identified with numbers marked on their chests or legs in dark ink, have big curious eyes and spiky hair. They move silently around the cages, swaying on plastic swings, dangling from perches, and splashing around in small pools. Some are young and frisky, others are aging and mellow. If not for the absence of snow-cone-splattered children and their bedraggled parents, the place could pass for a particularly well-stocked zoo.

Primate Products owns fewer than 10 percent of these monkeys. The rest belong to dealers, mostly from overseas. The company imports the animals on behalf of

its partners, completes the six-week quarantine required by federal law, and then breeds, markets, and sells them. The going rate for a monkey is \$3,400. The company also sells monkey blood, tissue samples, and other biological materials; manufactures equipment, such as cages and restrainers; and conducts training workshops on site for outside monkey handlers.

The "willing worker" training program is designed to teach monkeys to be more cooperative with scientists in a lab. In the warehouse, a Primate Products employee—who declines to provide her name out of fear of activist reprisals—demonstrates some training techniques on a big, fluffy stuffed-toy monkey. She clamps it into a proprietary macaque restrainer and rewards it with an imaginary treat. Once in his restrainer, a monkey is primed for a technician to draw its blood, for example. "Instead of using sedation, we train the monkeys to work with us," she says. "These are very smart animals. You can have a positive working relationship with them."

Dave Johnson, the president of Cascades Biosciences Consultants, says Houghton is one of the industry's leaders in creating ways to procure, handle, and transport lab monkeys. He says Houghton has made the entire process better, not just for researchers but also for the animals. "The animal rights people go after everybody in this field indiscriminately," Johnson says. "In truth, Paul is out there to promote the advancement of biomedical research and to do it in the most kind, caring, and comfortable way possible for the animals."

Houghton got into the monkey trade in the 1970s. Shortly after graduating from college with a degree in biology, he landed a job at the Stanford Research Institute, which had recently opened a primate observation facility that

collaborated with primatologist Jane Goodall. As an entrylevel hire, Houghton did whatever grunt work was needed. "At one point, they handed me a pair of gloves and said, 'grab that monkey,'" he recalls. "It was a total rodeo."

At the time, lab technicians typically restrained the animals by overpowering them, which could result in inadvertent injuries to the monkeys. At the very least, it agitated them, making them difficult to work with. Over the next several years, as Houghton moved between a variety of jobs at the institute, he tried to develop a better methodology. In 1980 he opened Primate Products and began selling lab equipment and services to research institutions.

One of Houghton's first innovations was a technique for moving monkeys in the lab. With the Primate Products system, the monkeys are trained to wear a collar around their neck that connects to a device with a long handle held by the worker. Houghton says the "pole and collar" method keeps monkeys calm and makes it easier for technicians to work with them. More inventions followed. In the mid-1980s, a client asked if Houghton sold monkeys. He didn't, but the question made him curious. He began visiting dealers overseas. What he found was an inefficient system. At the time, he says, trappers would follow loggers into the rain forest, catch monkeys, and hastily transport them to the U.S. Large numbers, still in shock from capture, died in transit. Those who survived often carried diseases, resulting in several outbreaks among U.S. and European lab workers of serious illnesses, including those caused by Marburg and Ebola viruses.

Over the following decade, Houghton, working with biologists and veterinarians, developed a more fastidious model.

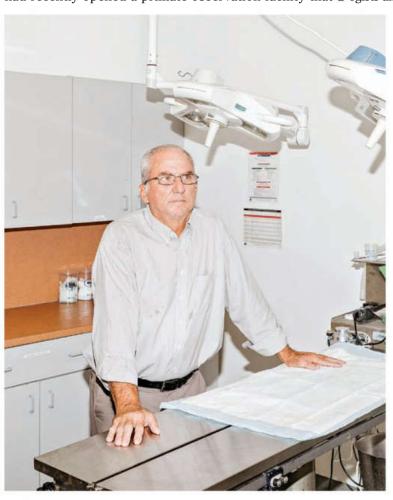
Monkeys were captured, given individual medical records, and raised on farms in the country of origin for long stretches before being transported to the U.S. Houghton says the farm system allows monkeys to acclimate to humans, reducing the percentage that die in transit. It enables vets to treat monkeys for diseases before they board a plane. And it encourages local farmers to breed the animals, generating a sustainable income and cutting back on the number of monkeys taken from the wild.

Houghton says he operated "like an overseas cattle buyer," sourcing animals from various farms and connecting them with buyers. He published papers in several scientific journals, often focusing on the genomics of macaque populations—information that helps scientists use monkeys more efficiently in research trials. "Nobody had really bred cynomolgus monkeys before," says Houghton. "There was a lot that wasn't known."

Last year, he provided some spare acreage to a private Mauritius-based company called Bioculture Group, which has since opened a second farm on the opposite side of the property.

For a while, even as activists descended on Hendry County, Panther Tracks avoided the melee. Then, last September, a young woman secretly employed by the People for the Ethical Treatment of Animals applied for a job at the facility. Rowell, who'd previously been burned by a similar operation at New Iberia, again inadvertently hired a spy. For the next eight months, she covertly videotaped her Panther Tracks colleagues.

In June, PETA released the results in a film entitled *Inside the Hub of the Global Monkey Trade*. By the extreme standards of the genre, the images are fairly mild. At one point, a worker roughly pulls a monkey by



Primate Products employees train monkeys to be more cooperative with lab workers



its tail. Another clip shows a cluster of groggy monkeys apparently waking up from medical sedation, sprawling in a heap on a concrete floor. The video created the desired effect. More than 80,000 people have since used PETA's website to send automated e-mails to Hendry County officials expressing outrage. The subject line: "Please shut down Primate Products."

Alka Chandna, a senior laboratory oversight specialist at PETA, says it chose Panther Tracks based largely on opportunity. The group saw a job listing and pounced. Sifting through government expense reports and scientific papers, PETA has since compiled a list of more than 30 Primate Products clients. In June, the group sent letters to each, imploring them to dump Primate Products over its "systemic neglect and violent handling" of monkeys. PETA also sent its video to the U.S. Department of Agriculture. Shortly thereafter, the USDA cited Primate Products for various hygienic and safety violations, such as spraying monkeys with water while cleaning their cages. Rowell says that Primate Products takes excellent care of its monkeys and that the PETA video is intentionally misleading.

Chandna says activists have a good chance of snuffing out the monkey trade in Hendry County. And whatever PETA can do to squeeze the supply chain, she says, will help the group's overall mission, which is to end the use of all animals in laboratory science. If you can disrupt the availability of lab monkeys, she argues, the cost will increase, ultimately creating more economic incentive for scientists to develop alternate methods of developing medications. "The problem is that, as cheap monkeys have come into the United States, the motivation for seeking non-animal methods has mostly evaporated," Chandna says.

For months activists have said that Primate Products is conducting research that goes beyond what's allowed under its agricultural zoning designation. In August, however, Hendry County officials completed a zoning inspection, which found

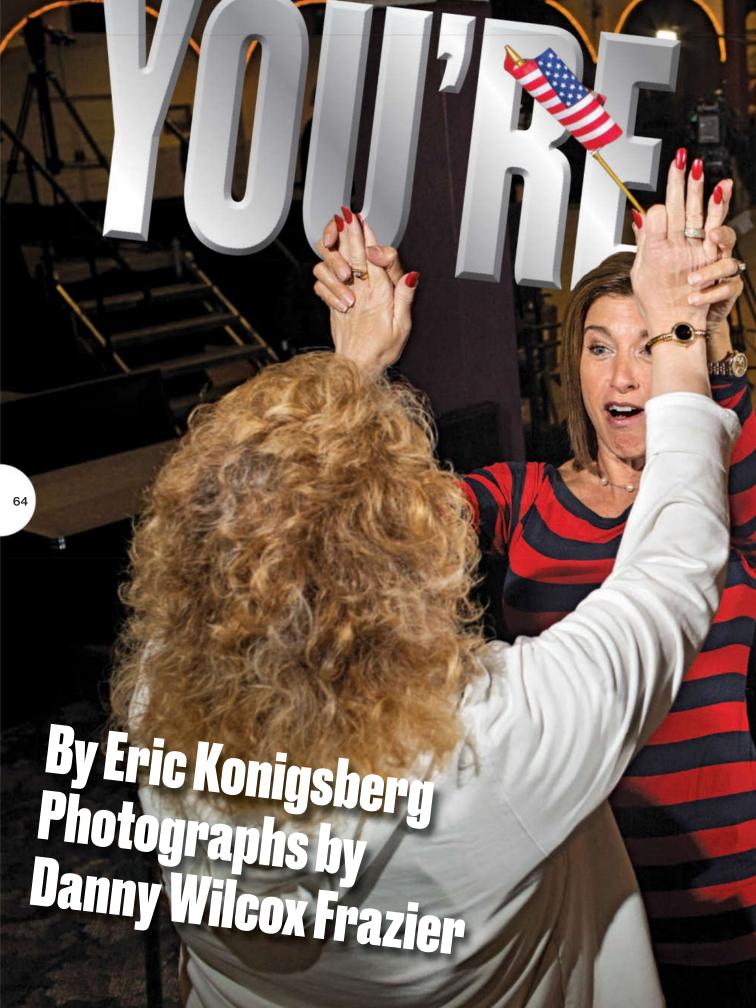
that Panther Tracks is in compliance with the code.

In the wake of the PETA video, the National Institutes of Health's Office of Laboratory Animal Welfare conducted an extensive, monthslong investigation of Primate Products' operations. In September the feds concluded that following corrective measures, Primate Products is now "operating appropriately" and in full compliance with the animal-welfare regulations. In a letter to Houghton, the regulators thanked him and his "dedicated and caring staff for promptly and thoroughly addressing all of the noncompliant items."

Houghton says that despite the stepped-up regulatory scrutiny and persistent vilification, he's never once considered closing up shop. "What we're talking about is basic morality," he says. "Is it right to try and help people who are sick? Is it right to try and cure disease? Or is it right to let people suffer and die? That's the basic decision that you're talking about. Either you fight the battle against human disease and suffering or you don't. I'm absolutely committed, body, mind, and soul, to what we do."

"They're zealots," Houghton says of his opponents. "But honestly, so am I."

Not long ago, Campbell hopped on an all-terrain vehicle and drove to the site of PreLabs' proposed monkey farm. In the past, she'd occasionally gazed at Google's satellite views of the site. Now, she wanted a closer look. Down a dirt road, she passed several "no trespassing" signs and came to a fence surrounding the site. Campbell gazed in. With the lawsuit ongoing, there were no new signs of construction. Still, Campbell felt anxious about the uncertain future of mankind and monkeys in Florida and beyond. She would like to stop working soon, sell her house in LaBelle, and put some mental and physical space between her and the monkey farmers. "We're not going to retire down here," she says. "Hell, I'm going to run from Florida as fast as I can."





"Strategy is everything,"

TANA GOERTZ,

the woman in charge of the contest, tells her 22 contestants. "We're going to start big with your task. You have 15 minutes.

The tableau is so familiar that it's easy to forget why people are gathering here in the parking lot of a mall in West Des Moines, dashing inside to collect signatures from as many strangers as possible. The prize is an invitation to stay in the game until the next round and a photo op with the big shot they all want to work for. Nobody's filming the action and, strictly speaking, this isn't reality TV but a presidential campaign. Except that the candidate is Donald Trump—so it's both. Those signatures? They don't have a purpose other than to bolster a campaign database. And that slot the contestants are battling for? A position as one of the delegates who will get to carry the Trump banner in Iowa's caucuses in February.

That Trump's campaign is finding its Iowa delegates via staged, game-show-style events might seem odd. But it begins to make sense when you consider the extent to which Trump's appeal as a candidate is built on his starring role on *The Apprentice*—a prime-time network show that, it must be noted, has aired for 14 seasons with anywhere from about 5 million to 20 million viewers. Although he's no longer the host of the program (that

honor now belongs to Arnold Schwarzenegger), *The Apprentice* continues to function as a piece of heavy and essential campaign machinery, arguably providing Trump's most important edge. Other campaigns struggle with the painstaking and expensive organizational hurdles of identifying potential voters by shared values, building name recogni-

tion through ads and public appearances (and, if they're lucky, press attention), working to alchemically combine message and personality to attract a fickle constituency who just might leave if the candidate says the wrong thing. Meanwhile, *The Apprentice*'s viewership gave Trump a giant base of committed, non-ideological enthusiasts.

And consider that the idea of procuring caucus delegates through *Apprentice*-like competitive "tasks" came from Goertz, 48, the Trump campaign's Iowa co-chair and a woman who rarely fails to cite having been a contestant on *The Apprentice* as the defining experience of her professional life. In 2005

(Season 3 to the faithful) she lasted until the penultimate episode and was named runner-up. That year, the show pitted a team whose members had college degrees against people who didn't, the battle of school smarts vs. street smarts. Goertz, a pillar of the selfmade squad—she'd spent 10 years going door to door in Iowa as a Mary Kay saleswoman—returned from her near-win to cobble together a living doing gigs in entrepreneurial self-branding. "I do motivational speaking, life coaching, product endorsements," she

says. "The best part of my career? I've never had a boss. I learned that from Trump."

She was paid to address an audience of 5,000 for a convention of the Atlanta Chamber of Commerce, She had a short-term deal as spokeswoman, with her picture on the packaging, for the BeDazzler-a home-crafts tool for affixing sequins. And a minor league hockey team in Des Moines hired her "to put asses in seats," which she accomplished through a series of contest-like promotions. "People come to me to put their business on steroids, to give them what made me successful, which is the TV show and using the competition style," she says. "It brings out superstars. It attracts people who are driven and want to kick ass."

Goertz, a mother of two, is that person. She has sculpted features, an aerobicized physique, and a vocal delivery that sounds as if it were created in a laboratory specifically for infomercials. When she calls supporters on the phone,





Goertz graces the BeDazzler box; from the opening credits of *The Apprentice*'s third season



they tend to mistake her for a recorded announcement that they've won something.

Winning!

At the Jordan Creek mall, Gina McClelland, a freckled, middle-aged woman in jeans and running shoes, is declared the winner for having obtained seven names (and, probably more important—the rules were a bit vague—for being the first to make it back outside to the Trump bus that serves as home base). Goertz stands on a Pelican cooler to address the crowd of about 40 volunteers and contestants.

"I heard a lot of you say you didn't have a watch, but as an apprentice, you have to take that into account," she says, before heaping congratulations on McClelland. "This is a woman who wasn't going to come to this

event because she didn't believe in herself, because she didn't think her job was glamorous enough."

"I didn't feel like one of the pretty people," McClelland says. "I'm just a fat old truck driver, but I feel like Cinderella at the ball." She beams and does a little shimmy with her hips, adding that as a trucker, "I'm not used to sprinting." She learned about the event on Goertz's Facebook page—the two hadn't met—but when she wrote to express reluctance, "Tana told me, 'Mr. Trump is who you want there for you. We're all insiders now, and we'll see each other again."

"When I heard you say that, I was about to go to my Tana Therapy place," Goertz says. "You are beautiful, Gina." She asks one of Trump's Iowa advisers to retrieve a T-shirt from the bus.

"I will knock on a thousand doors," McClelland says, adding that her strategy for obtaining signatures was simple: She only went to Scheels sporting goods. "They sell guns."

In light of Trump's candidacy, *The Apprentice*—and *The Celebrity Apprentice*, its later iteration starring famous contestants—can be viewed as an extensive Trump campaign ad, or as Goertz might say, an infomercial on steroids. Polls suggest that *Apprentice* viewers are Trump's base. David Axelrod wrote on CNN's website that Trump's poll numbers just after the second Republican debate were almost twice as high among people who watched the show than those who didn't. Among those who didn't, he still led the pack, though by only a single percentage point.

NBC introduced *The Apprentice* in early 2004, touting the premise as "the ultimate job interview" and offering 16 young and mostly unpolished men and women the chance to land a \$250,000 job "running" a Trump building in Chicago. The candidates were split into two single-sex teams and all shared a giant apartment in New York's Trump Tower. The weekly-elimination format had them competing at selling lemonade on sidewalks, constructing ad campaigns for a private jet company, and finding somebody to rent a Trump penthouse for no less than \$20,000 a night (Trump's properties and corporate sponsors were heavily featured). Instead of employment with Trump, winners on the *Celebrity Apprentice* score donations to favorite charities. In July, NBC severed ties to Trump shortly after he announced he'd be running for president and disparaged Mexican immigrants to the U.S.

As one of Trump's three co-chairs in Iowa—a fundraising position on most campaigns—Goertz has the central function of connecting Trump, the *Apprentice* character, to voters. "Who he is came through on the show: a boss. And through me, that's how people in Iowa will see him," she says.

Upon hiring her, Chuck Laudner, Trump's Iowa campaign director, said, "Tana, you're the only one who actually knows him," Goertz recalls.

"That's true," she adds. "I can put the human qualities to

the star. I'm the only one who has sat next to his wife at dinner. I'm the only one that's peed in his blue onyx toilet."

Most of the people who arrive at the Sept. 7 event in West Des Moines are *Apprentice* fans, and lots of them know Goertz from her appearance on the show as well. There are jokes about firing Obama and several people who say they haven't voted in decades but are going to vote for Trump in February.

"Something he was saying just resonated," McClelland says. "The GOP establishment is really not speaking to me. I wasn't going to even caucus this time, until Trump came along. I probably would've voted libertarian. I'm not voting for a Bush again, and I wasn't going to vote for Hillary. I'd vote for Bill." She adds, "I liked the season with Bret Michaels."

Mary Lynn, who began corresponding with Goertz on Facebook after she lost her 35-year-old daughter to cancer in 2013, had admired her on the show almost a decade earlier. Trump was already making himself into her favorite candi-

bully. Yes, for some viewers, there's a kind of glee in Trump's lack of self-awareness, blowing his own horn—claiming (in the second debate) that "the hedge fund guys...all love me," or (to contestants on *The Apprentice*) that he inhabits "the nicest apartment in New York," a place usually only visited by "presidents and kings." But the money shot of each episode arrives when he fires another unsophisticated, desperate, or merely hopeful contestant.

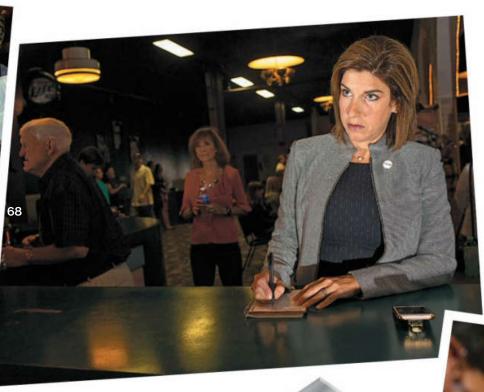
Trump is a boss who takes delight in canning people. He calls them by turns "stupid," "losers," "absolutely terrible," and "a very, very ineffective leader." A group of aspirants earns a special distinction: "In this boardroom, we've never had a team lose so badly." Then, in a tuxedo, he tells them, "Go home. Go home," as an overhead shot depicts several humiliated men in Florsheims wheeling their carry-on luggage through the Trump Tower lobby. Trump's capricious lowering of the boom brings to mind Joe Pesci toying with the uninitiated in the early nightclub

scene in *Goodfellas*. When a woman tries to speak up for a man who's about to get fired, Trump asks her, "What are you doing to yourself? How stupid is that?" Then he fires her instead, apparently for being too nice. Trump abruptly fires another man simply for the humble revelation that he comes from a "white-trash background."

"You think I want to hire somebody that's white trash?" Trump asks rhetorically. "How stupid can you be?"

For others, it's presumably a different side of Trump that renders the show satisfying: the mentor presiding over his meritocratic tournament of Big Business, doling out wisdom between the firings

A post-speech meet and greet with the candidate



date, she says, playing his part reliably. "I've had some issues with medical services available and what's available to people who aren't legal—seeing illegals coming into the hospital with purses from Dooney & Bourke, while we're

ideas before introducing Trump

Goertz jots down

just trying to feed the grandkids," she says. "And that's why I like him." She points to the Trump bus. "He just says it like it is. He's the only person who doesn't try to convince me of both sides."

Audiences, both live and on television, respond to Trump's aggression, says Richard Thornton, one of Goertz's co-chairs for the Trump operation in Iowa. "I love to watch the look on their faces. Sometimes he's a little strong, and he may step over the line. But he doesn't double dribble. He just shoots away."

To watch old *Apprentice* episodes is to understand that what Trump-leaning voters find appealing—along with his undisguised contempt for "illegals," opponents with homely faces, and world leaders whose identities can be grouped under the umbrella "Arab name, Arab name, Arab name"—is the C-suite



and insult-comedy shtick. The weeding-out games tend to be pure sales competitions. Unlike in talent pageants or food or fashion reality shows, winners and losers are determined strictly by the numbers.

On occasion, Trump relishes the opportunity to be generous. There was the time he dismissed a contestant who had designed (and modeled) the most egregiously skimpy, pink swimsuit. Trump permitted him to keep the trunks as his parting gift. Trump preaches a work ethic of diligence and optimism. "Do what you love, and you'll be successful," he often says. On *The Celebrity Apprentice*, he made a point of donating his own money to losing contestants' favorite charities simply because they asked or because he felt they

deserved to have fared better. Recently, when *Fortune* surveyed most of the winners from the original, pre-celebrity series, they praised his loyalty, attention to detail, and willingness to share practical advice once they came to work for him. One described Trump as "a guy who held up his end of the bargain," adding, "he truly took me under his wing."

One morning in September finds Goertz handling phone calls at her kitchen table. "We haven't moved into our office yet—this week," she says. Her husband, a local TV weather fore-

caster, is asleep; he's on air during the lobster shift. In their driveway is her Hummer H3 with vanity plates that read, "HEY TANA." She has a small study in a corner of her basement stocked with hundreds of purses and 500 self-help books, including *Nice Girls Don't Get Rich*, some Dale Carnegie, and Trump's *No Such Thing as Over-Exposure*.

Although she's yet to meet one of her two fellow campaign co-chairs in Iowa—a former military man in Sioux City—she's in steady contact with the other, Thornton. A well-connected lobbyist in Des Moines who shows up in her phone as "Buddah" when he calls (a typo—she means the deity), he keeps asking her to fix him up with her girlfriends. Thornton says Goertz's ability to warm up a crowd before she introduces Trump is "the kind of thing that makes you want to have a blood transfusion from her." A lot of folks call Goertz requesting her help in getting Trump to show

up to promote their events.

"You want me to use my Trump card," is her way of conveying the audacity of the ask.

She returns messages from strangers in other states who've seen her on TV and would like to volunteer. Most are retired, and talk about the country "heading in the wrong direction" or needing to get "back on track." One man, a former contractor in Indiana, wants to handicap the race. He asks about the threats posed by Vice President Joe Biden and "the socialist." "Do we need to be concerned about the surgeon?" he asks.

"No, no, we don't," Goertz says. "He doesn't have the business experience." She adds that he's low-energy. "I'm excited," she says to the caller before hanging up. "I'm working for the next president of the United States."

CNN calls asking if she'll appear later in the day to be interviewed as a Trump spokeswoman. She has her Des Moinesbased business manager call back to explain that "I can't do immigration or anything regarding the debates."

Goertz has found 20 delegates using *Apprentice*-inspired tasks. One is her son, Myles, a senior at the University of Iowa. "He won a social media campaign I came up with to get likes for Trump," she says. "He got hundreds, maybe—it's a very liberal school—to be named the campus caucus leader.

'People show up automatically with Trump....When he's thinking of coming to lowa, we actually have to keep it quiet"

Basically, he beat, like, his eight friends, who I was pushing to do it. But he met Mr. Trump in Dubuque, and he was thrilled. Trump says he's going to go far."

Iowa is currently the only state in which the campaign builds support through contests, but Goertz says she plans to replicate the practice elsewhere when she hits the road with the Trump team. "Trump personally told me he's taking me with him," she says.

Working for Trump poses unique challenges for the advance staff. "People show up automatically with Trump, especially the press," she says. "When he's thinking of coming to Iowa, we actually have to keep it quiet so that local security isn't overtaxed."

Her other duties include hiring the Trump bus and getting "a wrap for it and a driver," she says. "And I have to find the place where supporters can come watch the debates on TV." Goertz adds: "I got a Sprint car driver to wrap the wing of a car with a Trump sign. And when the car died in the practice lap"—it needed a new engine—"I found another driver to drive with the Trump wing in half an hour."

Trump's national political director, Michael Glassner, called to tell her, "Good job, kid."

On the June day when Trump announced his candidacy, Goertz called his office in New York and offered to help in Iowa. "I spoke to Rona, his secretary—we've talked for 10 years," she says. "I just always figured having Trump close to me was a win." Within the week, she was having a three-hour interview at a Des Moines coffee shop with Laudner, who she says told her he was a fan of *The Apprentice* and offered her a paid position as they stood to say goodbye. At first, she thought that, in a Trump administration, she'd be well-suited to an ambassadorship ("the Bahamas or Bermuda") but has since come to feel that a White House job "would make me seen and known better here in America."

Goertz says she was the first of her ex-*Apprentice* cohort to so much as volunteer for the campaign. "Now, they're all asking me for jobs," she says. "Guess what I tell them? 'Ask Trump yourself.'" **⑤**



DDICTION HOPELESS WITHOUT

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Share your story of recovery or message of hope with someone who needs to hear it. Visit drugfree.org and join the "Stories of Hope" community.



WITHOUT GRAVITY

TER FALL COCKTAILS NETELIX'S HUGE

ALTON **BROWN'S STYLE**



ashmere has been collected from the undercoats of Mongolian goats for hundreds of years. "Technical cashmere" has been around for about two. It's the creation of Shannon Wilson, the former lead designer for Lululemon Athletica who's married to the company's founder, Chip Wilson. The fabric is only 10 percent cashmere, blended with spandex and

cotton or rayon. It's the foundation for Kit & Ace, an apparel

company Shannon began by selling slouchy \$80 T-shirts to the so-called creative class.

"We have to make sure we're providing function and performance," Shannon says. "And time, right? The biggest thing is time," adds JJ Wilson, co-founder of Kit & Ace, former creative director for "men's vision" at Lululemon, and Shannon's stepson. Shannon is the new company's creative director; JJ is brand director. Chip, for now, is an informal adviser and financial backer, albeit one with unusual access to the founders. Kit and Ace are fictional muses, a single woman and man who are creative, active problem-solvers.

JJ points to a white neon sign, hanging on a white wall in the Kit & Ace boutique in Manhattan's Nolita. "Time is precious," it says. Time is too precious to spend at the dry cleaners, so the Wilsons' fabric is machine-washable. There are 31 stores, where JJ has selected local art for the walls and local lighting for the ceilings. Two have coffee shops inside. Four are called ateliers. A copper-colored Airstream is parked on the street outside the

New York store; it doesn't sell clothes but serves to "engage the creative class," says a Kit & Ace spokeswoman. The Copper Studio, as the Airstream is named, will head Down Under this spring to engage its creatives.

At Lululemon, the Wilsons embodied the "athleisure" trend. Activewear has grown to be a \$41 billion industry in the U.S. in

the last year, according to NPD Group. And Lululemon was at the forefront—with yoga

and workout pants flattering enough to wear to brunch after a spin class. For Kit & Ace, Shannon and JJ want to design clothes that turn that notion on its head. "We're going in the exact opposite direction," she says. "We're taking the best of technical apparel and applying it to the street." They say Kit & Ace isn't competing with Lululemon. They have little reason to—the family still owns about 14 percent of that company, a stake now valued at a billion dollars. But if Lululemon starts to design streetwear, JJ says, "that would be Lululemon competing with us."

The Wilsons opened the first Kit & Ace in the summer

of 2014 in Vancouver, where they live. Since then, they've expanded in Canada, the U.S., and Australia. They plan to double the number by mid-2016, to turn a profit by 2018, and, according to a recruiting video, to bring in sales of \$1 billion in five vears. It took Lululemon more than a decade to become a billion-dollar brand. The Wilsons' plan is an ambitious one, fueled by an \$845 million payout from selling half their stake in their old company.

On a late September afternoon, Shannon, 42, is wearing Kit & Ace's cream-colored sleeveless turtleneck with loosely pleated gray pants. JJ, 26, is dressed all in black. Shannon is careful, gracious, perky; JJ is less guarded, just as perky. They have an easy rapport and often echo each other. (JJ: "I don't want to say that we're going to be perfect, because we're not." Shannon: "And

sometimes people mistake integrity with perfect. And we are not perfect.")

They're sitting at a large wood table—there's one in every store—modeled after the kitchen table in Shannon and Chip's home. Kit & Ace executives in New York are supposed to work at the table so the store seems active; every couple of months it's the setting for a "supper club" for shoppers. At these dinners, guests have to answer prodding questions ("What



What Was Athleisure?

A century-old, stretchy style strend reaches its apex. —Julie Ma

le coq sportif

French brand Le Coq Sportif creates the first pair of sweatpants, designed to allow an athlete to move freely and comfortably.

1982

Jane Fonda releases her first aerobics video. It sells 17 million copies and inspires women to purchase patterned leotards, bright leggings, and leg warmers.

1998

Lululemon Athletica, Sweaty Betty, and Athleta are started in Vancouver, London, and Petaluma, Calif., respectively. All three market \$70 to \$80 leggings and other yoga apparel to wealthy, fashion-

obsessed exercisers.

Ele.

2006

SoulCycle opens its first spinning studio, or, Manhattan's Upper West Side. The location includes a boutique where fans can buy \$50 branded boodies and tees.



2007

Lululemon raises \$344 million in its initial public offering. do you believe déjà vu really is?") written by the Wilsons. That's something the family does at home, too.

The idea of Technical Luxury—which the company has trade-marked—first came to Shannon when she and Chip took their three younger sons on a sabbatical to Australia in 2012. Chip, then chairman of Lululemon, was clashing with its chief executive officer, and Shannon wanted a break, too. She started thinking about how to make an elegant fabric that could keep its shape and didn't require much care. It took two years for her to develop her Technical Cashmere, also trademarked. "The name is slightly misleading," says Ajoy Sarkar, an associate professor of textile development and marketing at the Fashion Institute of Technology. "It's basically high-grade, high-value rayon." Kit & Ace's spokeswoman says the company's "intention is not to replace cashmere" but rather to "achieve that familiar softness…but allow it to be machine-washable."

Shannon says she offered an early version of the fabric to Lululemon in 2013, but executives weren't interested. Lululemon declined to comment. "Maybe it's not such a breakthrough concept after all," says Robin Lewis, a retail analyst who publishes the Robin Report. Shannon says Lululemon just had a lot going on at the time. That's a diplomatic reference to the recall of 17 percent of its black yoga pants after customers complained the Luon fabric was too sheer. That was followed by Chip saying on television that "it's really about the rubbing through the thighs," then apologizing, then threatening a boardroom fight, then selling half his stake in Lululemon, then resigning from the board.

During this crisis, Shannon says, executives encouraged her to work on the new fabric outside Lululemon. In March 2014 she and JJ decided to start their own line. Kit & Ace now sells \$198 pants,

\$148 dresses, and \$348 jackets for women, and a similarly priced range of shirts and pants for men. The aesthetic is simple and modern, but not distinctive. "It seems very safe, design-wise," says Edward Hertzman, a textile consultant. Clothes made from a washable silk blend will be available in the spring.

This kind of luxury performance wear appeals to a small but growing group of consumers. "Kit & Ace is early to the market," Hertzman says. That's one reason the Wilsons are expanding so quickly. They know competition will be fierce. Also that the distinction between athleisure and Technical Luxury might be too fine for customers to care about. Already, upstarts such as Callens and Ministry of Supply sell \$500 leggings and \$138

stretchy chinos, while established brand Michael Kors makes sweatpants with cashmere for \$495, and Tory Burch offers a \$225 "Tech-Knit" skirt. "It's nice that Kit & Ace developed the Technical Cashmere, but it will be copied," says Hana Ben-Shabat, a partner in the retail practice at A.T. Kearney. "If they're smart enough to build a community, that's harder to copy."

In late January 2014, days before Chip resigned from the board of Lululemon, he told the *New York Times* the family spent \$7 million to get Kit & Ace started and expected to take on \$300 million in debt to fund the company's growth for the next four years. The Wilsons now refuse to discuss finances, and Chip, over e-mail, said: "It feels good to be in creation again and to support my wife and son in their new venture."

Shannon and JJ are trying to strike out on their own while re-creating parts of Lululemon's culture. Printed on Kit & Ace's

bright blue shopping bags is an essay, Integrity: Without It Nothing Works, by Harvard Business School professor Michael Jensen. Lululemon placed that same essay on its bathroom walls. For years, Jensen has worked with Werner Erhard, whose teachings are the basis for the Landmark Forum, a three-day motivational course. All the Wilsons have taken Landmark, which was central to the Lululemon culture. Lululemon paid for employees to attend-some say it pressured them to do so. Kit & Ace employees are also offered the course. "It's really how we operate as a family and how we communicate," JJ says. Even the youngest Wilsons-Shannon and Chip's 9-year-old twins-have enrolled.

The CEO of Kit & Ace, Darrell Kopke, worked at Lululemon as a senior executive from 2001 until 2009.

On LinkedIn he describes himself as that company's "key architect of the organizational culture." It took a little persuading to recruit him, Shannon says, "but he wanted to get back involved with the Wilson clan. He couldn't resist," she adds. In an e-mail, Kopke said his main concern about Kit & Ace's rapid expansion is fostering a culture where "employees take responsibility for their actions and operate in integrity."

As the company grows, the next step is to determine how Chip—the man behind the Wilson family's philosophy, its fortune, and its ouster from Lululemon—may get more officially involved. "We're figuring it out," JJ says. "We welcome him. For sure. We'd be foolish not to."

2014





2008

Gap acquires Athleta, starts selling \$49 sports bras on gap.com, then builds Athleta boutiques suspiciously close to existing Lululemon stores.



Alexander Wang's spring 2010 collection includes sports bras, boxy gray sweatshirts,

and ribbed tube socks.

2011 Lululemon hits

Lululemon is forced to recall 17 percent of its black yoga pants when a fabric defect results in leggings that are indecently sheer. Meanwhile, Gap declares it a "breakout year" for Athleta.

Demand for yoga gear outpaces growth of the sport itself. Sales in the activewear category as a whole rise lits in ender sales of jeans fall 1 percent. The term "athleisure" is adopted widely.



SoulCycle, now a bona fide lifestyle brand, files for an IPO, revealing \$112 million in revenue for 2014.



BASIS DI AN MUSICINI DI SILICITO MISSI AND SCOTE

BARBIERI

Cardamaro, iike all six of these bottles, is from Italy but some amari hail from other European countries

MARO CA

Show your cree and pronounce it correctly: CHEE-nahr

GNAR

EIGHT TO HATE TO

NEWS - PRODUCT OF THE LOCKES - 1 HIS

A guide to
bracing, herbaceous
old-man amaroand the cocktails to
use it in this fall
By Elizabeth G. Dunn

Cardamaro Amaro

great "gateway" amaro for those just getting used to botanical flavors. Light and nutty, it's a little like dry sherry but with herbs.

Drink it on its own, chilled, over ice, says Khaled Dajani, who stocks more than 80 amari at Bar 821 in San Francisco.

Aperol

Instantly recognizable for its neon orange appearance (from a natural coloring), this fruity, floral spirit is a sweeter, milder cousin of Campari.

Drink it with tonic water, which subs for the traditional prosecco in a less boozy version of the Aperol spritz, says Naren Young at New York & Caffé Dante. Garnish with a lemon wedge.

Cynar \$24

This classic artichoke-based amaro is stiff and earthy-not for the timid. Mix it with smooth brespirits to make the flavor more approachable

Drink it in a variation on a boulevardier, says Graham Heubach, general manager of the Sportsman's Club in Chicago. Mix ¼ oz Cynar with ¼ oz. amontillado sherry, 1½ oz bonded bourbon, and a spoonful of honey syru. Serve with a twist of orange peel.



NETFLIX'S OSCAR BAIT

With Beasts of No Nation, the streaming service comes after the cineplex. By Logan Hill

he film *Beasts of No Nation* opens on a group of young African refugees playing with an old, disemboweled television set. The camera peers through the broken screen as the kids start putting on a show they call "Imagination TV." They act out kung fu battles, dance scenes, and slapstick sequences. Considering the film's controversial release by Netflix as Oscar bait, it reads as a metaphor: Here's a ragtag crew determined to tear apart old TV and build something new.

When Netflix bought Beasts of No Nation for \$12 million last July, it rocked Hollywood. The brutal drama about child soldiers in an unnamed West African country was directed by one of today's hottest young directors, Cary Fukunaga (True Detective, Jane Eyre), and co-stars one of Hollywood's hottest actors, Idris Elba (The Wire, Thor, and a million James Bond rumors). But if Netflix's purchase was a surprise, its audacious distribution strategy was shocking: On Oct. 16, Beasts of No Nation opened in about 30 theaters and was simultaneously released to the company's 65 million subscribers.

For the streaming service, *Beasts of No Nation* is a chance to expand into high-class films. The costs of acquiring preproduced content are rising sharply—because of competition, mostly—so Netflix will budget \$500 million for such projects next year. Already it's outbid establishment rivals for new TV shows and developed

Emmy-winning
series such
as House of
Cards and
Orange Is the
New Black.
Later this fall,
it will release
The Ridiculous 6,
the first film in a fourpicture deal with Adam
Sandler. Next year the brand will

release War Machine, starring Brad Pitt.

Beasts is Netflix's biggest bid for an Academy Award, but it's not the company's first. For the 2014 prizes, Netflix aggressively promoted Jehane Noujaim's Egyptian revolution documentary *The Square*, which earned three Emmys and an Oscar nomination. This year, Netflix scored its second Oscar nomination for *Virunga*, a documentary about Congolese park rangers protecting gorillas. Those releases were bold yet uncontroversial—Netflix's marketing muscle exposed small, relevant films to a huge audience.

Beasts of No Nation is a harrowing journey into a cruel world—and it's a leap forward for the talented Fukunaga, who uses his brash style to tell an important story at a time when more than a quarter-million children have been forced into battle from Syria to Sudan. Like 2013's best picture winner, 12 Years a Slave, the film is strikingly rendered, technically dazzling, and often gruesomely violent. It's anchored by powerful, awards-worthy performances from Elba and the film's true lead, Abraham Attah, an inexperienced

14-year-old Ghanaian discovered on a school soccer field.

But this Oscar race is particularly crowded, and awards-season politics are often inscrutable. Theater conglomerates, which have some pull with voters, are lobbying against Netflix for obvious reasons. "I'm still not sure *Beasts of No Nation* is a player, even though it will make my top 10," says longtime Oscar handicapper Gregory Ellwood. "Idris, hands down, has the best shot as supporting actor."



Elba has a chance at winning best supporting actor

The distributor is following a traditional Oscar playbook: Netflix hired Strategy PR, led by Miramax veteran Cynthia Swartz, to direct its awards-season campaign. Peggy Siegal, an influential movie

marketer, is producing tastemaker screenings with celebrity hosts including Christiane Amanpour and Sting. One of the Oscars' open secrets is that many voters see films on DVD screeners anyway.

and *Beasts of No Nation* is even easier to watch at home. But producers have still courted the international film community by rolling it out at key festivals in Venice, Italy, where Attah took home a breakthrough acting award, as well as Telluride, Colo., and Toronto.

"I hope soon we can start talking about how great Idris and Abraham are and what a great film Cary

made and stop talking about how it's being distributed," says Jonathan King, the Participant Media executive who helped develop the film before the streaming service bought it. Netflix, Strategy PR, and Siegal all declined to comment. When it comes to *Beasts*, the best possible outcome for Netflix is that people stop talking about Netflix.

Please join us for an exclusive screening of the Oscar-worthy film

Beasts of No Nation

Location: Your living room
Time: Your call
Dress Code: Your pajamas
(pants not required)

Seamless delivery will be served. RSVP with your order.

OM LEFT: ALAMY; COURTESY NETFLIX





Can a "gravity-reducing" treadmill get you going again? By Brad Wieners

f you've ever been sidelined with a bum knee, you're in good company. As each generation takes up running—for sport, to shed a few pounds, or as after-work therapy—knee injuries and procedures to deal with them continue to multiply. In 2013, 719,000 Americans had a knee replaced, according to the Centers for Disease Control and Prevention, up from half that number a decade before. This presents an opportunity for AlterG, an exercise equipment maker in Fremont, Calif., that licenses technology

from NASA. Its hulking treadmills have been shown to speed recovery from running injuries—shin splints, say, or orthoscopic surgery—and stave off symptoms of diseases such as multiple sclerosis. The devices, at \$36,900 to \$80,000, lie outside most homegym budgets, so they're becoming an amenity at physical-therapy clinics and boutique gyms. "Its greatest use is rehabilitation," says Gabriel Griego, AlterG's vice president for marketing. "But we're hearing from serious athletes, too, who use it to extend their weekly mileage with less wear and tear on the joints."

THE TECH

NASA developed a way to keep astronauts fit in low-gravity situations such as at the International Space Station. AlterG treadmills flip that concept around: They use air Pressure to lift a runner, reducing her "weight" by as much as 80 percent. The NBA's Washington Wizards bought the first one in 2007; AlterG has since streamlined the design and made it more reliable.

THE TEST

"Once you're in there, you can't fall," says Barry Heyden, former strength coach for the New York Mets, as he zips me into an AlterG F320. Before I climbed in, Heyden had me shimmy into Spandex bike shorts and then pull on a neoprene skirt-like a kayak'swith a zipper edge. He notes that along with people like me, recovering from knee surgery, the AlterG is especially helpful for heavier runners. He has me start walking, then dials up the "differential air pressure." I don't float like Neil Armstrong, but I can land on my knee without agony-a minor miracle. It gets sweat y under there, and one's dignity isn't spared: I look like I'm auditioning to be a centaur in Clash of the Titans. But I'm soon jogging for the first time in months.

THE TAKEAWAY

I probably overdid it: My knee did swell over the next couple of days. But for anyone kept from the trail or track they use to clear their mind, it's worth the price for a session you can book on line at one of 1,200 U.S. locations that have one. Some PT clinics incorporate the AlterG into their program fee.) It might seem intense for regular sessions-unless, of course, you can't run with a normal gait. In that case, it's magic.



YOU WANTED A HIT?

In an adapted excerpt from his new book, The Song Machine, John Seabrook explains why streaming services will never kill Top 40

ver since Napster and the dawn of the age of file sharing, the record business has been the canary in the coal mine for the culture industry. First the product went digital, with the MP3, then it became free, then the record stores closed and distribution went online with iTunes. Now, as music consumption shifts rapidly to streaming, the record companies are embracing a business model that doesn't include record sales at all.

Despite these enormous disruptions, one thing hasn't changed: the importance hits play in the business. Ten percent of all songs still supply more than 90 percent of the revenue, according to hit man and Lava Records Chief Executive Officer Jason Flom, just as it was before the Troubles. Hits not only move records and earn royalties, they also sell tickets to shows and generate fees from commercials, TV shows, and movies. What is the most popular playlist on Spotify? Top 40 pop. What are SiriusXM's most listened to channels?

Venus and Hits 1, the two hits stations.

Published to much fanfare 10 years ago, Chris Anderson's book The Long *Tail* prophesied the coming age of the "micro-hit." Relying partly on data from Rhapsody, an early streaming service, Anderson wrote of the "unseen majority" that would form a "market that rivals the hits." Hits were a scarcity-based phenomenon, he argued, the result of the record stores' need to maximize shelf space by stocking popular items. Once distribution went digital, hits would decline as money flowed toward the artistic middle class. "If the twentieth-century entertainment industry was about hits, the twenty-first will be equally about niches," Anderson declared. Many in Silicon Valley and beyond embraced the theory, including Google Chairman Eric Schmidt.

A decade later, this looks like a techno-utopian fantasy. By many measures, hits are bigger than ever. In terms of YouTube views or Spotify streams, Taylor Swift's *Blank Space*, with more than a billion plays, is almost eight

times larger than Britney Spears's 1998 single, ... Baby One More Time. It's not that the public wants to listen to Katy Perry; we're simply carpet-bombed into submission. Hits are everywhere—not only on radio and the Internet, but at shops, restaurants, gyms, and stores. (A 7-year-old friend of mine calls them "shopping songs.") Today's hits are industrial-strength tunes, smashes made for arenas and ballparks and the Super Bowl halftime show.

The singles-driven economy opened the door to a new kind of tune-writing, which I call "track-and-hook" in my book. This approach has been monopolized by a cabal of (mostly Swedish) producers who've perfected the art of making breakout songs. They all bristle with "hooks," musical burrs designed to snag your ear every seven seconds, the average amount of time people will give a song on the radio before changing the channel. They're painstakingly crafted to tweak the brain's delight in melody, rhythm, and repetition.

If the hooks sink in deep enough, an artist like Perry, Rihanna, or Swift can sell out a worldwide tour, which is where most of their money comes from. As Tor Hermansen, half of the hit-making production duo Stargate, put it to me, "You can have two or three hot singles on an album, or no singles, and that's the difference between selling 5 million copies worldwide and launching an 80-date sold-out world tour, and selling 200,000 copies and having no tour. That's, like, a \$20 million difference."

The multiplicity of choices offered by streaming services has only reinforced the importance of the hit. Listeners really do have infinite possibilities at their fingertips. But no one—not Spotify, not Apple Music, not SoundCloud—has solved the problem of what to listen to next. Hit radio fills that void, and the relationships between the labels and stations ensure pop's supremacy.

Big Radio is still the best way—some would argue the only way—to create a hit. If a song seems to be playing everywhere at the same time all at once, so that it's perceived to be a hit, it often becomes one. To make that happen, a radio promotion team works closely with the program director and with social media, where everyone seems to want to talk about the same thing. The hits supply the content of those connections, which, in turn, make the hits bigger still. **⑤**





UDY VREDENBURGH

Chief executive officer, Girls Inc.

"The school I went to wasn't hard. It was a big shock to get to Penn and find I wasn't prepared."



"I was traveling the world-we bought samples in Europe and produced them in Taipei, Seoul, and later India. It was tremendous exposure to be doing business around the world as a woman."

With her Little Sister, Sherice Holliman, in 2006



"In nonprofits, decisions have to be very participative. You don't have as much formal authority and resources; you have to use informal



Education

Northeast High School, Philadelphia, class of 1966

University of Pennsylvania, Philadelphia, class of 1970

State University of New York at Buffalo School of Management, class of 1975

Work Experience

1974-79

Inventory manager, buyer, Winkelman's

1979-87

Vice president for merchandise, Abraham & Straus

1987-91 Executive vice president,

Sizes Unlimited/Lerner Woman

1991-92 CEO, president, Chess King

1993-99

Senior vice president

for revenue development and marketing, March of Dimes

1999-2009

CEO, president, Big Brothers Big Sisters of America

2010-



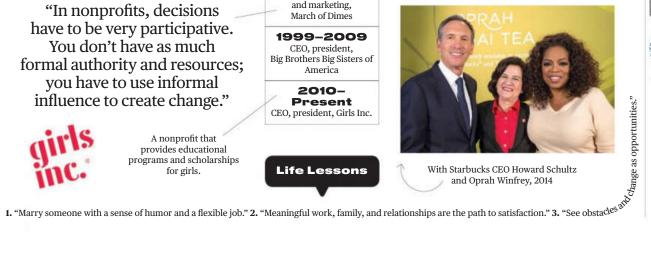
"I met my now-husband, a Vietnam veteran enrolled at Wharton."

> College photo, 1969

"I was hired to turn around Chess King, but my boss at the holding company disagreed about the direction, so I left after a year. I had a wonderful contract that paid me for a period of time, which allowed me to transition to nonprofit work."



With fellow attendees at the Big Brothers Big Sisters 100th anniversary, 2007







subject (5). Astrid Stawiarz/Getty



"Delivering business-critical apps over the Internet saves us millions without sacrificing performance.

Riverbed makes it possible."

Edward Wagoner, CIO, Americas



JLL transitioned from a private network to Internet-based application delivery, relying on Riverbed for superior performance. Now the firm's 58,000 employees who deliver strategic commercial real estate services worldwide have apps and data at their fingertips. That's instant value for JLL's clients. More than 26,000 companies rely on Riverbed for end-to-end application visibility, optimization, and control. Riverbed.com

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